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EDITORIAL CORRESPONDENCE.

The Dormant Resources of Montana.

VIRGINIA CITY, MONTANA TERRITORY,
July 29, 1871.

WHEN it is considered with what difficulty and expense communication, travel and transportation are maintained between the Territory of Montana and the rest of the world, it seems marvellous that any one should come here or stay here at all. The route by the Missouri river boats and Fort Benton is tedious and precarious, by reason of the low water, which stops navigation always before it is desired, and frequently before it is expected to do so. The only other route now employed is the road which leaves Corinne, Utah, on the Central Pacific railroad, passes near Fort Hall, in Idaho, and crossing the vast basaltic plains of the Snake river, enters Montana by Pleasant, Sharp Creek, and Beaver Head valleys. With 450 miles of hauling to be represented, as well as the railway transportation in the prices of all imported articles (among which must be included many of the necessaries of life), Montana is heavily weighted in the race with other territories; and the fact that she maintains prosperity, and is increasing in permanent population and sober industries, points to extraordinary natural resources. I purpose to speak briefly of these reserves of power, and particularly of the effect which the establishment of railroad communication will have, in stimulating their development.

First and fundamental are the agricultural capacities of Montana. A region which does not produce its own food must carry on every other industry at a fearful disadvantage. I know that the wonderful State of Nevada will be quoted as an example of prosperity based almost exclusively upon mining; but this illustration really supports my proposition. It is not true, by the way, that there is no agriculture in Nevada; still less that an extensive agriculture may not hereafter arise in the valleys of that State. The sterility of the sage-brush country is an exploded superstition. The land lacks only water; and irrigation has already in many places produced wonders. But granting that Nevada has been hitherto, and will long continue to be, devoted chiefly to mining, and that food as well as other supplies have been imported into the mining districts, it is a notorious fact that this condition of affairs has crippled the mining industry from the beginning. The profits of the mines have been much smaller than they would otherwise be; a scanty and wandering population has made labor both dear and hard to control; and finally, the net gains of the industry have mainly gone out of the State, leaving behind as "improvements" stamp-mills, cheap temporary houses, and holes in the ground. The railroad, the steady growth of agriculture, and other causes, will doubtless improve this state of affairs; but thus far, it must be acknowledged, Nevada has bled at all her veins without gaining a healthy life from such phlebotomy. The southern part of Idaho belongs to the same category.

In travelling by the stage-road northward from Corinne, no sooner is the Montana boundary passed, than nature assumes a different face. The sage-brush gives way to nutritious and abundant bunch-grass; the vast, arid *mesas* are succeeded by lovely valleys; and instead of the barren brown ranges of the South, appear the pine-clad summits of the Belt and Rocky Mountains. Abundant streams of clear, pure water traverse the fertile bottoms; and though, by reason of insufficient rain-falls at certain seasons, irrigation is a necessary part of agriculture, yet the means of effecting it are ample and easily available.

Corn is not cultivated with much success, and fruits have been raised by a few enterprising and skillful horticulturists only; but all grains and roots flourish amazingly. The heaviest wheat-ears I have ever seen were harvested this year in the valley of the Stinking Water.

(This, dear reader, is the vilest misnomer in history. It has cost me much pains to ascertain what miscreant gave, and for what insane reason, this odorous name to as fair a stream as ripples in Arcadia. I have discovered that it is a reminiscence of early days, when a party of pioneers found on the banks of this stream an Indian burying-ground, the bodies, according to cheerful Indian custom, oxidizing—to put it mildly—on platforms in the open air. The braves have withered and bleached, years ago; but like WATT'S saints, they "leave a long perfume." If you would use a less unpleasant name for this pleasant river, take the Indian title, *Passameri;* but bear in mind, for your disgust, that it means the same thing!)

The grasshoppers have been, for three years past, the most pestilential enemies of the Montana farmer. But this season they have disappeared. I found them in great numbers on the Union Pacific railroad, in the neighborhood of Laramie, careering westward in fiendish glee, and whitening the air with their hosts; but they were too late to do much harm, even in Utah; and meanwhile Montana has escaped them altogether. To offset such occasional scourges as this, the ranchman of this Territory has the certainty of high prices for his product. At the present time, flour is worth $26 a barrel, and oats are selling at over $2 a bushel, in this place. These are unusually high prices, though not quite so bad as those of early days, when, in one of the first winters of the placer-miners here, the Mormon wagoners demanded $80 for flour, per sack. The usual price of oats here is $1 per bushel, or about 2½ cents per pound; and with all the growth of the production during the last few years, the supply has never yet exceeded the home demand. Probably there is no other region in the United States at present where such inducements are held out to farmers as in this Territory. Many immigrants are coming in now, in the good old-fashioned way, with their teams and wagons and wives and babies, to locate in the valleys of Montana. But it is a long and tedious journey; and, at the end of it, one is shut out from the world. Make Montana as accessible by rail as is Utah or Colorado, and the tide will come in grandly. Now, it is but the faint beginning; as WHITTIER says:

> "I hear the tread of pioneers,
> Of nations yet to be;
> The first low wash of waves, where soon
> Shall roll a human sea."

Another hindrance to agriculture which the railroad will remove is the danger from hostile Indians. This does not at all affect the region from which I am now writing, nor many other fertile districts of the Territory. It is mainly over in Gallatin valley that the settlers suffer. Last week the Sioux of SITTING BULL, a noted outlaw chief, not under treaty with the United States, and mustering, it is said, a thousand braves, made a sudden descent for stock-stealing purposes in the region referred to, and got away with some 300 head of horses. They killed two or three persons in an incidental way, and have ere this retired to their mountain fastnesses. Without the facilities of transporting and concentrating troops which a railroad gives, it is almost impossible to follow up and catch these rascals, to say nothing of maintaining such a police as to prevent their depredations. The Sioux and Blackfeet are perhaps the most numerous and warlike of our red enemies. I am satisfied that the problem of dealing with them, like the minor problem of the Apaches in Arizona, will be settled finally by railroad, and in no other way.

It is to the stock-raiser, even more than to the farmer, that robbery, whether at the hands of Indian or white, is a frequent source of loss, and the raising of cattle and horses is pre-eminently the business for which large portions of Montana are fitted in a most remarkable degree. The bunch-grass, which grows here in such luxuriance as to lose, in some places, its characteristic distribution in bunches or clumps, and to cover the whole surface with continuous pasture, is already famous as a nutritious and fattening food for stock. Cattle and horses are turned out upon it at all seasons, even in the winter, and improve in condition while grazing. This grass dies early, but retains its nutritious properties all winter. It thus constitutes a standing hay—only it is much better fodder than hay, and almost like grain in its effect. To be more exact, I might say that to pasture a horse on bunch-grass is like giving him plenty of good hay, with regular and liberal feeds of grain. There are a good many horses in the Territory now, but the breed has hitherto been poor. Now more attention is given to breeding; and in a few years this Territory will furnish, I am convinced, a strain of serviceable blood, worthy of the great advantages Nature has bestowed upon the stock-raiser here.

The grass to which I have alluded makes excellent beef also—present price here, 25 cents a pound. The herds in some of the valleys amount to 5000 or 6000 head. There is a great demand still for oxen as well as cows; and Montana is importing cattle, as well as receiving into her ample grazing lands the stock of other States and Territories. I rode in the stage the other day with a stock-raiser of Southern California, who had brought 600 horses all the way to this Territory, by way of Salt Lake and Bear river, having been forced to leave home by the terrible drought now prevailing in that quarter.

But we are not yet done with the bunch-grass. For myself, all the good qualities ascribed to it are as nothing to me compared with its capacity of producing (of course with the assistance of the necessary bovine female and her lacteal fount) remarkably

rich, sweet milk. The value of the dairy products of Montana is already over $500,000 annually; but that is only a feeble beginning. Like everything else here, except gulch mining, this business is in its earliest infancy. The Territory contains 23,000,000 acres of agricultural, and 69,000,000 acres of grazing land; and these vast areas are merely peppered here and there with the cabins of perhaps 5000 ranchmen, the rest of the population being gathered in the mining towns and camps.

I have said nothing about sheep-raising; but every wool-grower will see that this must be a country excellently adapted to that business. But there is no home market for wool, because there are no home manufactures. Mr. GREELEY must have patience; the Territory is not yet ten years old; and everything cannot be done at once. When the time comes, however, the mountains stand ready to offer water-power and lumber.

All the industries I have mentioned will start into vigorous life when the railroad shall have opened the way to the civilized and commercial world; and behind them stands the great mining industry, the condition and relations of which will be discussed in another letter. To a future occasion, likewise, must be left the consideration of the coal-deposits on the line of the Northern Pacific Railroad in this Territory.

R. W. R.

Polytechnic Club of the American Institute.

THE following is the last instalment of the report of the proceedings of this Society before their adjournment. Although the matter has been long delayed, the scientific facts mentioned remain the same, and the observations and remarks upon them of the same value that they possessed when new:

VI. EXHALATION OF PLANTS.—The functions of the leaf are such that, during its exposure to sunlight, it gives off exhalations both of gas and vapor. It decomposes carbonic acid gas, absorbing the carbon and setting free the other component, oxygen gas; at the same time it concentrates the sap of the plant by carrying off its surplus water through the pores of the leaf in the form of vapor. During active vegetation, the quantity of water exhaled by the leaves is very great. Botanists have carefully measured the extent of this exhalation in certain plants. Several experiments of HALES and others may here be noted. A sunflower 3½ feet high, presenting a surface of 39 square feet, exposed to the air and light, was found to perspire at the rate of from 20 to 30 ounces avoirdupois during every 12 hours, or about 17 times more than the amount perspired by an ordinary-sized man during the same time. An apple tree with 12 square feet of foliage was found to perspire 9 ounces of water per day, and a vine of about the same surface from 5 to 6 ounces. Recent experiments by Dr. MCNAB with the laurel cherry prove that its leaves contain about 63 per cent. of water. Sunlight was found to be more efficient than chloride of lime or sulphuric acid in extracting water from the leaf. In light of any kind the under-surface of the leaf was found to perspire more water than the upper-surface. At night the process is arrested, and even in the shade only 2 per cent. of the water in the leaf passed off per hour into a dry atmosphere, while in a saturated atmosphere exhalation ceased. It seems obvious that this function of the leaf must have great effect in modifying climate. Experiments in India and Africa in planting extensive forests in territory deficient in moisture have shown that within a few years the number of rainy days during the year have increased at least fourfold.

DR. VAN DER WEYDE—I think the attraction of trees for moisture is like the attraction of mountains for clouds. A group of trees has a tendency to cause the rain to fall there.

The PRESIDENT—May that not be because the atmosphere around the trees is saturated with moisture from the perspiration constantly going on?

Prof. PHINN—The subject of the influence of forests upon rain is one of the most interesting now before the public. I think that there is an agent at work here, to which a great many effects are attributed without reason—electricity. I do not think it probable that the vapor given off in a particular locality is returned to that locality in the form of rain. A spire of grass is just as efficient in drawing off electricity as a needle point. In a forest of trees, with its numerous points discharging electricity from the clouds, we see a powerful influence at work, which, I think, has more to do with the result than evaporation. Further, the amount of vapor produced by a plant will be largely increased by its being placed in a dry atmosphere.

Prof. JAMES A. WHITNEY—This is a question of practical importance, as well as of scientific interest. These experiments seem to me a repetition of experiments made many years ago. The proportion of water to the mineral matter has been shown to be 2000 to 1; so that the amount of water passed off must be, to a certain extent, independent of the atmosphere around it. It has been stated by a German chemist that the amount of dilution of the mineral elements can never exceed in strength one grain to 1000 of water. It hardly seems necessary to attribute to electricity the climatic results from the planting of forests. The water passing into the air will furnish it with moisture tending to the deposition of dew and the falling of rain. In my journey across the plains last summer, it was a matter of consideration how those plains could be made arable, there being no mountains and no great mass of water supplying the necessary moisture. But I presume there are under those burning sands reservoirs of water which can be reached by artesian wells, as in California; and 700 artesian wells, scattered over those plains in the great desert, would make the land fertile. Then planting trees there, it is more than likely that we could create oases in the desert which would bring into that arid country the blessings of a more temperate climate. I do not hesitate to express the opinion that in the sinking of those wells will consist one of the greatest triumphs of engineering in the coming century; and in the results which will follow, one of the greatest triumphs of applied science.

Mr. BECKER related the instance of wells in Germany surrounded by trees, which entirely dried up when the trees were cut down. On planting new trees there, on the hills, the water returned, and increased as the trees increased.

Dr. VAN DER WEYDE—The number of rainy days in Egypt has been increased by the planting of trees. And the French have made artesian wells in the deserts of Algeria and created oases there. I do not think we need to look to electricity for the cause of the rain. The coolness of the air, in forests, seems to me a much stronger source of the precipitation of water than any mysterious electrical tricks. When warm atmosphere fully charged with moisture comes in the neighborhood of the cool forests, there is, of course, a tendency to precipitation.

Prof. PHINN—The difficulty with regard to the theory of coldness is simply this, that in winter plants are invariably warmer than the surrounding atmosphere, and that with the exception of hot days their temperature is always higher. When we have rain, the temperature of forests is always higher. On warm days, when the atmosphere is dry and carrying off the moisture, their temperature is lower; but then we have no rain. On cool days, when we have rain, their temperature is higher.

Dr. VAN DER WEYDE—They are cooler on warm days in consequence of the evaporation; for evaporation is a cooling process. And when they are cooled, they are in a condition to condense the moisture from a current of warm and saturated air.

VII. DELICACY OF THE SPECTRUM ANALYTICAL METHOD.—Prof. ROSCOE, in a recent lecture "On Spectrum Analysis and its Application to the Bessemer Process of Manufacturing Steel," presented the following table, showing that in the spectrum analytical method the delicacy of reaction is something almost beyond belief:

1. *Soda*.—1-3,000,000th of a milligramme or 1-189,000,000th of a grain of soda can be easily detected. Soda is always present in the air. All bodies exposed to the air show the yellow soda line. If a book be dusted near the flame, the soda reaction will be seen.

2. *Lithia*.—1-100,000th of a milligramme of lithia or 1-6,000,000th of a grain can be easily detected Lithium was only known to occur in four minerals It is now found, by spectrum analysis, to be one o the most widely distributed elements. It exists in almost all rocks, in sea and river water, in the ashes of most plants, in milk, in human blood, and muscular tissue.

3. *Strontia*.—6-100,000 of a milligramme or 1-1,000,000th of a grain of strontia is easily detected, and has been shown to exist in very many limestones of various geological ages.

4. *Lime*.—6-100,000th of a milligramme or 1-1,000,000th of of a grain of lime can be easily detected.

5. *Cæsium*.—This new alkaline metal was discovered by BUNSEN in the mineral waters of Baden, Darkheim. Its spectrum consists of two bright blue lines. Thirty tons of mineral water yielded 100 grains of Cæsium.

VIII. THE STRENGTH OF PORTLAND CEMENT.—Mr. JOHN GRANT, in a paper recently read before the Institution of Civil Engineers, London, described a series of experiments made by him for the purpose of testing the strength of Portland cement, also the different modes of using cement. A sewer constructed of concrete, consisting of one-seventh cement to six-sevenths of sand, and lined inside with cement, was regarded by him as the cheapest form of sewer combining strength with soundness. Tables were also given of the strength of 589,271 bushels of Portland cement used during the last five years on various works south of the river Thames, showing an average tensile strain at the end of a week of 806.63 pounds, equal to 358.5 pounds per square inch, being an improvement on that reported five years ago of 89 pounds per square inch. At the end of thirty days, 37,200 bushels of the same cement, as ascertained by 1180 tests, had an average strength of 455 pounds per square inch. Further experience had confirmed the earlier conclusions that the strength of Portland cement increased with its specific gravity, its more perfect pulverization, and its thorough admixture with the minimum quantity of water in forming mortar. Heavy cement, weighing 123 pounds per bushel, took about two years to attain its maximum strength when used pure; but by the admixture of sand or gravel, cement, mortar, or concrete was reduced in strength, and set less rapidly than pure cement. Roman cement, though from its quick setting property very valuable for many purposes, deteriorated after exposure to air before use, about twice as much as Portland cement, if measured by strength. In making cement concrete, it would, from this, seem desirable to spend no more time than was absolutely necessary to effect a thorough admixture of the cement with the sand and gravel.

COMPENSATING CAR-WHEEL.

Mr. W. E. PARTRIDGE exhibited and explained a model of W. F. FRYER'S Compensating Railroad Car-Wheel. The wheel is constructed of two concentric wheels, united together at a point about equidistant between the rim and the hub, by elastic packing, which takes the jar from the imperfections of the track before it reaches the axle. The outer part of the wheel is chilled iron, and the center is soft iron. The mechanism is very simple, and adapted to preserve the car from jar, and the axle from breaking.

The PRESIDENT—We had before us last year an elastic wheel, intended to accomplish the same ends as this.

Mr. FISHER—Have there been any experiments to determine the force of traction required for this wheel?

Mr. PARTRIDGE—I do not know that there have been any experiments; but the theory is that it requires the same force as if the whole interior were of the same substance with the packing. The extra traction, I take it, is just equal to the friction in the spring.

The PRESIDENT—I do not think there is much loss there.

Mr. FISHER—The assumption is that the elasticity of the spring is perfect. I question that perfect elasticity; and I think we need the practical test.

ELECTRICITY AS A MOTIVE POWER.

Dr. L. BRADLEY resumed the discussion of the subject of the use of electricity as a motive power. The report of his remarks, and of the subsequent debate, is reserved for publication, in connection with the debate on the previous evening.

A Union Railway Station for Toronto.

A PROJECT for a large Union railway station in Toronto, to be common to all the railways running into that city, has been frequently mooted. It is now again on the tapis.

Smelting Processes at Freiberg.*

By PERSIFOR FRAZER, JR.

AFTER the silver has been refined, the little buttons of silver are collected from the hearth, and put aside to be added to the next refining. The part of the hearth into which the oxides of lead and bismuth have soaked (and which contains from 15 to 20 per cent. of bismuth, and 0.15 to 0.2 per cent. of silver) is removed, and submitted to the bismuth separation process.

If the blick-silver is to be treated for gold, it is freed from lead and bismuth in the manner indicated; but, instead of being poured out into pans, it is granulated. The metal is ladled out into a cylindrical copper vessel filled with water. The ladle being filled, is moved round and round, and the metal poured out in thin streams into the water, whereby the silver is very finely granulated.

It makes small porous masses of silver, and in this form is most easily attacked by acid. The copper vessel has two pipes, one above and one below. The cold water pours in through the lower, and escapes from this upper pipe. Unless the water is sufficiently cold, granulation will not take place. The separation of the gold from the silver is undertaken exclusively at the Halsbrückner Smelting Works, and consists in the treatment of the granulated and refined blick-silver with concentrated sulphuric acid and the addition of heat, whereby the whole of the silver is dissolved as "silver vitriol," while the gold which was combined with it remains behind in the form of a powder.

The operation is performed in a dissolving or separation kettle of cast iron, which is walled in above a blast furnace. The kettle is covered by a copper cap during the application of heat and the period of dissolving, and a pipe is connected with this cover, through which the sulphuric acid vapors are conducted to a small condensation chamber of sheet lead, intended to catch all the little particles of sulphate of silver which may be carried off mechanically. From here the gases are conducted into a chimney. In the copper cover is an aperture through which the contents of the kettle can be constantly stirred. Six centners of auriferous silver are dissolved at one time in such a kettle; and to do this requires 12 centners of oil of vitriol, of which 5 centners are poured in at first, and the other 7 centners added from time to time. In order that the silver may not stick fast to the bottom of the kettle, the mass must be stirred continuously with an iron rod. At first there is a violent disengagement of sulphurous acid, and great care is necessary in firing to prevent the acid from boiling over. In eleven hours the dissolving is finished, and the solution is allowed to stand for ten hours more, in order that it may cool and the gold residue may settle. At the expiration of this time the concentrated solution of sulphate of silver is ladled into copper pans by means of a copper ladle, and transported to a large wooden vessel lined with sheet lead (silver precipitation vessel). It is here stirred with wooden poles; a piece of old copper sheeting is put into the tank, and it is heated by the introduction of steam to a temperature of about 70° C (158° Fahrenheit). The silver precipitates in the form of a grayish-white crystalline mud. In proportion as the metallic silver precipitates, copper vitriol is formed.

Towards the last, the liquor is tested for silver by chloride of sodium. When the dissolving is complete, the liquor is allowed to stand for ten hours, in order to permit the fine particles of silver to settle perfectly, and is then drawn by means of leaden syphons into a basin, where the settling is completed. After this, the fully desilverized liquor is conducted into the evaporation pans, where it is treated for copper vitriol. The "cement silver" which remains in the silver precipitation vessel is sifted in a copper sieve, to get out any particles of copper that may be mixed with it, and is then placed in a tank provided with a false bottom, in which a sufficient number of holes have been made for the escape of the liquid, and is well washed with hot water, until the latter ceases to give with chloride of barium the reaction for sulphuric acid. The waste water is collected, and as it contains sulphate of copper in solution, it is used to dilute further charges of sulphate of silver in the precipitation tank. The thoroughly washed silver is then pressed into bricks to expel the water as much as possible, and is brought, in the form of small cylinders, into an iron retort, and heated to redness, to drive off the last trace of water. It is then melted in Graphite crucibles in a blast furnace, with stone-coal in masses of 410–420 pounds, and poured into small cast-iron moulds, which have been smeared with tallow, a test of it having been previously taken to ascertain the degree of fineness. This silver is delivered to the mint with a fineness of 99.9 per cent.

If the silver is very poor in gold, two or three dissolvings of six centners refined blick-silver each are conducted in the same kettle, so that the gold of eighteen centners or so is concentrated in it. The gold residue so left is very full of impurities—silver vitriol, metallic silver, and anhydrous salts of copper and iron—and, for its further purification, is boiled for three hours with concentrated acid, and allowed to cool and settle, the clear liquor being transferred to the silver precipitation vessel. It still contains anhydrous sulphate of copper and iron and metallic silver. It is boiled with hot water in a wooden tank lined with sheet-lead, in order to dissolve the salts. This boiling is repeated three or four times. The wash-water of the boiling is precipitated with copper by itself, because a great deal of sulphate of silver is dissolved in it. It is colored green from the iron vitriol. The thus desilverized liquid is used to sprinkle roasted ore. The rest of the wash-water of this gold is used like the wash-water from the precipitated silver, to dilute the concentrated solution of sulphate of silver. The gold residue is now twice again well digested with 200 pounds of concentrated sulphuric acid in an iron kettle, the first time for eight hours, and the second time for one hour. This is done for the perfect separation of the undissolved silver. From forty centners of this material, enough auriferous residue is obtained to fill two small kettles. This is then put into a porcelain crucible, and boiled with hot water, in order to get rid of the sulphate of silver. The wash-water is continually tested for silver.

The gold residue now, for the first time, assumes the brownish yellow color of finely divided gold. It is well dried on plates of graphite, and then twice heated to redness, after being mixed with sulphate of silver, and boiled with fresh acid. After each boiling, it is boiled with water. It is now melted in a Hessian crucible with saltpetre, to get out any lead that may still remain in it. After cooling, the crucible is broken, and the gold is melted over again in a graphite crucible, in order to free it from the saltpetre slag. It is then poured out, 99.4 per cent. fine, into small cast-iron moulds, in which form it is sold. A pound of gold is worth 466 reichsthaler.

BISMUTH SEPARATION PROCESS.

It has been stated that bismuth exhibits a stronger affinity for silver than does the lead, and it is to this cause that we are to ascribe the marked predominance of bismuth over other metals in the hearth of the refining furnace. This hearth, saturated with the last impurities which leave the silver as fused oxides, contains 20 per cent. of silver. It is treated for bismuth as follows: The hearth is stamped fine and digested in the cold, in earthenware vessels, with equal parts of hydrochloric acid and water, in which the bismuth dissolves, while lead and silver remain in the residue. The bismuth solution is drawn off by means of leaden syphons, and the residue is washed several times thoroughly, the wash-wster being poured with the first solution into a large reservoir in which there is sufficient water. The whole of the bismuth is precipitated, as basic terchloride of bismuth, in the form of a white mud. This is then filtered off and dried, after which it is melted in an iron crucible with the addition of calcined soda, coke-dust, and glass-powder, and reduced to metallic bismuth.

VITRIOLIZATION.—This process consists in boiling the completely oxidized concentration matt with dilute sulphuric acid, by which treatment the copper is dissolved, and the silver and sulphates of the other metals remain as residue. This solution is allowed to stand and clarify itself, and then crystals are obtained by its concentration. These crystals (so-called raw crystals) are dissolved and the solution concentrated again, giving crystals of sulphate of copper so pure as to be fit to bring into commerce.

The concentration matt is first stamped and sifted in order to get the grains as nearly as possible of one size. It is then roasted in the Hearth and Muffle Furnaces, but the muffles are not used in roasting it. The matt is put into the furnace by means of iron boxes. The weight of a charge is 10–12 centners, and the length of time of roasting 16 hours. The roasting is begun with a light fire until the matt, by reason of its percentage of sulphur, ignites. During the last 4 to 8 hours it requires a strong fire for the purpose of decomposing the metallic oxides. The charge is turned every two hours (from the chimney to the fire bridge). Besides this, it must be well worked over with the shovel, and the lumps which are formed, broken up. In front of every working door is a workman who has an eight-hour shift. In 24 hours the consumption of fuel is 7 bushels of coal. The concentration matt melts so easily that, in spite of the greatest care, portions of it will adhere to the hearth sole, and these portions must be removed by an iron instrument adapted to the purpose. Those agglutinated parts are stamped and again roasted for the oxidation of the enclosed pieces of matt. The roasting is continued for 16 hours, in charges of from 10–11 centners. The completely roasted matt is drawn out of the furnace in iron boxes, and transported to a mill, where it is first sifted; the fine dust, fed through two sets of millstones, by which it is very finely pulverized, is again sifted, and then placed in the dissolving tanks. That portion of it which is too coarse to pass the sieves is stamped and roasted again, in charges of 10 centners. The solution is conducted in cylindrical vessels lined with sheet lead, and whose bottoms are made of antimonial lead.

There are at present at the Halsbrücke smelting works two dissolving tanks, one great and one small one, the former capable of holding 4 centners of finely-pulverized roasted concentrated matt. About 9 centners of acid of the lead chamber (48° to 50° Beaumé) are introduced into the larger of these vessels, and this is then diluted with twice the bulk of mother liquor from previous operations.

The mixture of acid and mother liquor is heated to the boiling point by the introduction of steam, and the roasted and pulverized matt is then stirred in with wooden stirring instruments in small quantities, while steam is steadily admitted. In three-quarters of an hour the material is completely dissolved. The steam is now shut off, and the liquid allowed to stand a quarter of an hour, in order that the finely-divided argentiferous residue may settle, and the saturated solution of 40°–42° Beaumé clarify itself. In twenty-four hours, eight solutions are made in the larger tank. After the liquid has cleared in the larger vessels, it is drawn off, by means of leaden syphons, into the crystallization tank. Such a tank has a capacity of 100 cubic feet, and holds the liquor of four solutions. All these tanks and vessels are lined with sheet lead.

The argentiferous residue left in the dissolving tanks is well washed, in order to separate the copper vitriol, then washed down through the cock, in the lower part of the tank, and just above the bottom, into a receptacle beneath, where it is again well washed, and then filtered through linen cloth, and finally dried in a furnace, and conveyed to the Lead Process, to extract the silver.

This residue consists in the main of sulphate of lead and metallic silver, particles of sulphur, and anhydrous salts of copper and iron. It averages 30 per cent. of lead, 2 to 2.5 per cent. of silver, and 7 to 8 per cent. of copper. In the crystallization tanks there are suspended numerous bands of lead, to which the crystals of sulphate of copper attach themselves. Crystallization requires from eight to ten days.

These first crystals (raw vitriol), which, on account of the concentration of the solution, are somewhat unsightly in their appearance, are re-dissolved either in water or in mother-liquor, in other lead-lined tanks, heated, as before, by steam.

This liquor is crystallized in the same way, and produces the crystals of copper vitriol which are required by commerce.

A portion of the mother-liquor which has only a strength of 25° Beaumé, more or less, is used to dilute the strong sulphuric acid at the commencement of vitriolization, while another portion is concentrated, by evaporation in leaden pans, to the previous strength of 40-42° B., and given over to crystallization. The vitriol crystals from this part of the liquor are dissolved and crystallized again. The mother-liquor of this crystallization contains much iron, besides all the constituents of the matt, of secondary importance, manganese, zinc, arsenic, and a considerable amount of nickel; and it is used to quench the red-hot ore from the roast furnaces. The mother-liquor of the copper vitriol is used again and again to dilute the strong acid, as has been said before, until it becomes so rich in iron that it can no longer be used without rendering the copper crystals impure from that metal.

The pure crystals of copper vitriol are washed in water, to free them from adhering acid, then dried on long shelves, in a room into which warm air is admitted, and finally packed in barrels and sold.

(To be continued.)

New Publications.

RESOURCES AND DEVELOPMENT OF KANSAS. FIFTEEN YEARS' EXPERIENCE. By C. C. HUTCHINSON, with a New Map and Forty Illustrations. Topeka, Kansas. Published by the Author. 1871.

THIS volume of nearly three hundred pages is published by State aid and authority, for the purpose of encouraging immigration to the State, by the dissemination of correct information regarding the climate and resources, the way to acquire a title to public land, etc.

There appears to be no doubt regarding the richness of the agricultural land of this State, and the adaptability of the soil and climate for the production of many different crops. The State embraces a great variety of climate, and is generally healthy, perhaps more so than any other State situated between the Alleghany and Rocky Mountains.

The scenery seems to convey the impression that the country is not a new one, but rather an old one, long since deserted by its inhabitants. BAYARD TAYLOR says of it: "The counterpart of this region is not to be found in the United States, yet there was a suggestion of other landscapes in it which puzzled me considerably until I happened to recall some parts of France, especially the valleys in the neighborhood of Epernay. Here, too, there was rather an air of old culture than of new settlement, only the houses, gardens, and orchards were wanting."

American Smelting and Reduction Works.

NEW YORK, July 28, 1871.

PLEASE inform me, through the columns of your valuable journal, of the capacity of the combined reduction and melting works in the United States that treat gold and silver ores, and oblige. MINER.

ANSWER.—We should be very much pleased to obtain the information requested ourselves, but know of no way of obtaining it with any degree of accuracy. The capacity of these works is continually varying, and not one in a hundred of them is worked to anything like its full capacity. There is the greatest difficulty in getting approximate figures of the bullion production of the country, which is a very much simpler question to solve than the one propounded by our correspondent.—ED.

THE COPPER TRADE OF ENGLAND.

The following figures have been kindly furnished us by one of JAMES LEWIS's sons, and may be relied upon as being correct. These reports are published annually by JAMES LEWIS & SONS of Liverpool:

IMPORT OF FOREIGN COPPER PRODUCE FROM ALL PARTS INTO—

	Liverpool and Swansea.			London.		
	Ore.	Regulus.	Barilla.	Bars, Ingots & Slabs.	Bars & Slabs	Total Fine.
1862	68,147	36,169	1,110	9,749	3,418	42,157 Tons.
1863	72,970	18,066	942	9,470	2,707	34,279 "
1864	61,348	25,386	1,260	19,691	4,503	46,549 "
1865	75,046	39,969	565	18,284	2,947	51,632 "
1866	64,177	34,310	1,530	13,573	6,843	48,336 "
1867	47 443	29,980	1,204	24,037	4,932	50 530 "
1868	68,823	27,780	2,184	28,144	5,012	60,122 "
1869	56,333	38,768	2,875	24,253	5.466	60,138 "
1870	46 466	43,218	1,632	24,647	15,078	60,652 "
OF THE ABOVE, CHILE BOLIVIA, AND PERU CONTRIBUTED—						
1862	41,033	36,169	1,110	8,473	190	33,739 "
1863	32,038	18,066	942	7,972	39	23,047 "
1864	26 421	25,386	1,260	17.722	9	34,968 "
1865	29,168	39,369	565	16,555	29	40,198 "
1866	31,862	34,310	1,530	10 891	..	33,546 "
1867	13,770	29 450	1 204	23,255	..	39,639 "
1868	15 340	27.780	2,188	26,739	..	45,073 "
1869	10,001	38,768	2,875	22,854	..	46,163 "
1870	7 896	43,218	1,632	23,189	..	47,355 "

IMPORT OF FOREIGN IRON PYRITES (PRODUCING FORMERLY 2 PER CENT. LATTERLY 2½ PER CENT. OF COPPER.)

1864.	1865.	1866.	1867.	1868.	1869.		1870.	
170,990	193,626	244,596	272,698	229,720	319,947	†	413,000 Tons Ore.	
3,420	3,872	4,892	5,454	4,594	8,000	†	10,325 "	Fine Copper.

PRODUCTION OF COPPER ORE IN THE UNITED KINGDOM—

214,604	198 298	180,378	158,544	157,335	129.953	*	115,000 Tons Ore.
13,363	11,898	11,153	10,233	9,817	8 291	*	7,000 " Fine Copper.

PRODUCTION OF IRON PYRITES IN THE UNITED KINGDOM—

94.458	114,195	135,402	116,899	76,484	75,984	*	75,000 Tons Ore.
1,890	2,284	2,708	2,338	1,530	1,520	*	1,500 " Fine Copper.

IMPORT INTO HAVRE DIRECT FROM CHILE ..... 4,490 2,464 4,472 * 5,500 " " "

STOCKS OF WEST COAST PRODUCE IN LIVERPOOL AND SWANSEA DECEMBER 31st—

4 816	11,400	7,860	8,013	12,328	16,852	23,900 Tons	Fine	Copper.
" OF ENGLISH AND FOREIGN IN LONDON—									
4,421	3,724	6,494	6,713	6,753	7,072	4,056	"	"	"
" OF ALL KINDS IN HAVRE—									
5,530	3,720	4,710	235	4,820	6,250	8,487	"	"	"
							"	"	"
14,767	18,844	19,064	18,961	23,901	30,174	36,443	"	"	"

EXPORTS OF ENGLISH AND FRENCH COPPER TO ALL PARTS—

	1862	1863	1864	1865	1866	1867	1868	1869	1870	
Foreign	8,675	62,823	9,002	9,344	14.092	14,130	20,851	12,087	15 250	Tons
English Unmanufactured	5 073	12,792	6,002	5,571	5,826	9,643	8,174	12 045	10,906	"
Manufactured	24,179	32,687	33,190	28,301	24 788	30,626	31,985	33,293	3 ? 640	"
Total in Fine Copper	32,834	45,036	41,305	37,275	39,325	47 878	53,987	50 404	50,210	"

ESTIMATE OF HOME CONSUMPTION FROM ABOVE FIGURES—

	1864	1865	1866	1867	1868	1869	1870	
Import from all parts	46,549	51,632	48 336	50.530	60,122	60,138	60.652	
Production of United Kingdom	13,303	11,888	11,153	10,233	9,817	8,291	7,000	
British and Foreign Pyrites	5,310	6 156	7.392	7,792	5,803	9 520	11,825	
Stock, 1st January	5,500	9,237	15,124	14,354	14,726	19,081	23,924	
	70,662	78,913	82,005	82,909	90,468	97,030	103,401	
Export	41,305	37,275	39.325	47,878	53 987	50 404	50,210	
Stock 31st December	9,237	15,124	14,354	14,726	19,081	23,924	27,956	
	50,542	52,399	53,679	62,604	73,068	74,328	78,166	
Home Consumption, Tons Fine	20,120	26,514	28,326	20,305	17,400	22,702	25,235	

	Sold at the Cornish Ticketings.		At the Swansea Ticketings.	
1862	183,313 Tons Ore.	11,562 Tons Fine.	40,294 Tons Ore.	6,037 Tons Fine.
1863	173,252 " "	11,121 " "	43 596 " "	6,206 " "
1864	162,330 " "	10,050 " "	32,430 " "	4,628 " "
1865	159,449 " "	9,750 " "	25,217 " "	3,704 " "
1866	137,121 " "	8,717 " "	36.148 " "	5,204 " "
1867	119 706 " "	8,028 " "	25,547 " "	4,098 " "
1868	118,715 " "	7,789 " "	34.166 " "	5,152 " "
1869	93,144 " "	6.433 " "	28,007 " "	3,901 " "
1870	81,278 " "	5,641 " "	14,534 " "	2,322 " "

	1862.	1863.	1864.	1865.	1866.	1867.	1868.	1869.	1870.	
Export to India	10,038	15.046	16,067	10,140	8.139	19,058	13,771	17,263	† 11,196	Tons.
Egypt	—	—	3,519	2,079	372	368	512	1,490	† 1.346	"
Export from Chile	43,109	32,540	47,500	48,372	45,840	44,807	43 818	55,055	† 49,000	"

* These are necessarily estimated. † In this case we compute the quantity from the returns for eleven months.

The Treatment of Ores.

TO THE EDITOR—Sir: I wish to be informed through your valuable paper, whether there are any valid objections to Messrs. WHELPLEY & STORER'S (of Boston) Process of treating Ores. They consist of three parts: The first is the Crusher; the second, the Pulverizer; the third, the Furnace. All are very simple, effective, and, to my mind, perfect. It is not through mere curiosity that I ask the question. I am interested in mining, and expect to go to Colorado soon to engage in erecting works. We are thinking of adopting the WHELPLEY & STORER mills, but wish to be sure that there is none bettter; or if there is, what is it?

You will confer a great favor by answering these questions.

Yours respectfully, W. H. C.

ANSWER.—Our correspondent has put upon us no light task. We are requested to analyze the ore-beneficiating apparatus of Messrs. WHELPLEY & STORER, and to say whether there is any valid objection to it, without specifying what kind of ore is to be treated. One might as well tell a physician that a friend was sick, and ask what should be given him; or a lawyer that one had a suit in court, and demand his opinion on the merits of a case, which he knew nothing about.

Why cannot people, who take a sensible view of other things, exercise ordinary common sense in mining matters?

Planting Trees by Railroad Tracks.

THE Lake Shore and Michigan Southern Railroad Company have commenced the work of planting trees alongside the tracks of their road, 11,000 chestnuts and 10,000 European larches having been planted along its line between White Pigeon and Toledo, through the country where the forests have been mostly cleared away and the supply of timber is scantiest. The work was most thoroughly done, with intention that every tree might live, and the cost, including the time of the laborers, who belong to the regular force of the road, and did this work in connection with and in addition to their ordinary duties, was an average of eight cents per tree; excluding the labor of the company's ordinary employés, the cost was only four cents per tree.—*U. S. R. R. and Mining Journal.*

THE COAL TRADE.

B. B. WESTERN, COAL EDITOR.

Anthracite Coals.

NEW YORK, August 18, 1871.

WHOLESALE.—Dealers generally report a very satisfactory business doing, and prices well maintained. Everything runs along smoothly in the trade, nothing of moment transpiring to disturb the harmony of business. There is some speculation as to what the Pittston prices will be for next month (September), which will be announced on Monday next. It is generally believed that there will be a light advance, say 10c. to 15c., which the market can well sustain.

Our tables show that we are about 2,000,000 tons yet behind, compared with the production of last year up to this date. The active business then at this time is easily accounted for. This deficiency must be made good, and besides the usual yearly increase in demand must be provided for. A little cool weather will stir up trade immediately. Hence the parties not yet supplied with a stock will do well to buy now, and save higher prices and rates in freights.

Lehigh coal remains very scarce in all sizes. One stout, good-looking, austere salesman of a leading coal company, upon being importuned for a small cargo, replied, "couldn't have a pound if you were to offer me $400 per ounce." This is drawing the coal trade to a very fine line, and we expect that such will be the progress of the "age of coal," that we shall receive the quotations of this company hereafter for *ounces* instead of *tons*.

RETAIL.—The demand is good, although the competition makes the profits very light. Familes are laying in winter supplies and manufacturers are also stocking up.

FREIGHTS.—Vessels carrying from 100 to 150 tons are scarce, larger vessels are plenty. We quote, Boston, $1 90 to $2 00; New Haven, $1 00 for Elizabethport

Anthracite Coal Trade for 1870 and 1871.

The following table exhibits the quantity of Anthracite Coal passing over the following routes of transportation for the week ending August 12, 1871, compared with week ending Aug. 13, 1870.

COMPANIES.	1870. WEEK.	1870. TOTAL.	1871. WEEK.	1871. TOTAL.
*Phila & Reading R.R.	107,747	1,422 498	99 516	2,091,253
Schuylkill Canal	16,409	124,655	35,287	536,549
Lehigh Valley R. R.	59.994	1,944 344	78,707	1,114.279
Lehigh & Sus. R. R.....	13,206	577,187	35,065	658,729
Lehigh Canal	23,740	348.793	26,845	274,013
Scranton North.....	19.740	445.120	20.2 3	208 011
" South	33 775	1,088 694	45,877	497,201
Penn. Coal Co., rail....	23,560	694 307	28,036	313 470
" " " canal..	957	11,234	720	6.627
Del. & Hud. Canal Co..	52,670	933, 367	39,780	430,697
" " East.....	6,483	234 828	7.780	158,775
" " West	894	49.318	3,630	48.018
South.....	12,088	263 042	10.097	146,794
Shamokin.....	13,859	249.0 1	12,867	3c7,343
Trevorton.....	....	47 832	....	....
Lykens Valley Coal Co..	2,817	28,724	2,411	54,573
Wyoming South.....	12,856	148,205	....	....
Wyoming North.....	....	....	....	4,167
P. N. Y. C. & R. R. Co.	5.720	184,715	....	104,987
Williamstown Co'y....	6,790	178,281	....	....
Big Lick Col...	....	42,124	3,807	83,259
Total.....	419,295	9,030 309	450,628	7,118,735
1870.....		7,118,735	419 295	
Decrease.....		1,917,574		
Increase.....				31,333

* Less coal transported for Co's use and Bituminous coal.

Bituminous Coal Trade, 1870 and 1871.

The following table exhibits the quantity of Bituminous Coal passing over the following routes of Transportation for the week ending August 12, 1871, compared with week ending Aug. 13, 1870.

COMPANIES.	1870. Week.	1870. Year.	1871. Week.	1871. Year.
B. & O. Canal.....	14,163	309 529	15 757	3 8,168
C. & O. R. R.....	16,962	506,541	25,027	754,075
H. & B. T. R. R.....	5 7 0	191 020	3,028	213,975
Harrisburg & D.....	13,181	481,773	13,255	497,889
*L. V. R. R.....		9,380	7,459	245,813
P. & N.Y.C. & R. Co.....	6,132	151,585		
Cumberl'd Branch Canal	1.795	57 067	5,861	114,986
" Railroad....	2,026	61,745	1,077	45,:74
Total.....	60,049	1,768,640	71,464	2,270,678
			60,049	1,768,649
Increase.			11,415	502,038

The tonnage of the P. & N. Y. C. & R. R. Co. is included in hat of the L. V. R.R Co.

Lehigh Canal Coal Trade.

Shipped for the week ending August 11, 1871.

	WEEK. Tons. Cwt.	TOTAL. Tons. Cwt.
Total from Mauch Chunk Region,.....	8.57 18	118229 17
" " Beaver Meadow "	3575 09	19501 03
" " Tresckow "	1430 18	8512 14
" " Mahanoy "	388 06	3065 10
" " Hazleton "	6981 04	56563 19
" " Upper Lehigh "	960 08	5527 03
" " Wyoming "	5171 00	62610 02
Total	29245 03	274013 08
Corresponding week last year.....	25739 19	349793 01
Increase.....	3105 04	
Decrease.....		74779 13

Report of Coal Transported over Central R.R. of N. J. (Lehigh and Sus. Div.)

Week ending August 12—Compared with same time last year.

WHERE SHIPPED FROM	WEEK 1871., tons ct	WEEK 1870. tons ct.	YEAR 1871 tons cwt.	YEAR 1870. tons cwt.
Wyoming Region . .	32763 17	29588 13	689098 02	725101-13
Upper Lehigh Region .	4020 03	3754 13	31296 18	86756 08
Beaver Meadow Region				
Hazleton Region . . .	7031 13	9912 09	57043 15	168226 05
Mahanoy Region . . .				
Treseko w Region.....	3669 17		21309 19	
Mauca Chunk Region .	8543 13	883 14	103898 10	31631 16
Totals . . .	55829 03	44144 09	902647 04	1011716 02
Increase . . .	11684 14			
Decrease . .			109068 18	
DISTRIBUTION.				
Forwarded East of Mch Chunk by Rail . .	35065 05	19206 06	658728 13	577186 15
Forwarded East of Mch Chunk by Canal. . .	15282 09	17892 13	148770 06	267894 10
Delivered at and above Mauch Chunk . .	1339 04	787 01	34349 12	25439 00
Delivered to L. & B. R. R.at Plymouth Bridge	3668 11	5753 05	39484 12	125999 15
L. V. R. R at Packer'n	475 14	505 04	21334 00	15196 02
Totals . . .	55829 03	44144 09	902647 04	1011716 02
Of the above there was transported on acc'nt of L. C. & N. Co.....	11967 13	888 14	142599 11	*48285 13
W.-B. C. & I. Co....	19020 15	14250 03	500899 06	326451 06
Totals. . . .	30988 08	15138 17	643468 17	374736 19
Increase . . .	15849 11		258731 15	
Decrease .				

Philadelphia and Reading R. R.

Amount of coal transported on the Philadelphia and Reading Railroad during the week ending Saturday, August 12, 1871 :

	tons. cwt
From St. Clair	31,764 05
" Port Carbon	8,656 08
" Pottsville	1,375 19
" Schuylkill Haven	31,202 17
" Auburn	8,968 18
" Port Clinton	17,410 02
" Allentown and Alburtis	146 04
" Harrisburgh and Dauphin	13 254 13
Total paying freight	112,710 06
Coal for Company's use	4 126 18
Total for week	116,837 04
Previously this year	2,498,225 15
Total	2,615.122 19
To same time last year	1,942,178 02

Pennsylvania Coal Company.

Shipments of Pittston Coal for the week ending August 12, 1871.

	1871. WEEK.	1871. YEAR.	1870. WEEK.	1870. YEAR.
By Railway.....	28,036 04	313,469 14	23,560 02	694.307 06
" Canal.....	720 00	6,626 14	956 14	11.233 12
Total.....	28,756 04	320 096 08	24,.16 16	70 ,540 18

Decrease 1871, 385,444 10 tons.

Philadelphia & Reading Railroad and Branches.

COAL TONNAGE

For the Week ending Saturday, August 12, 1871.

BY RAILROAD—ANTHRACITE.

PASSING OVER MAIN LINE AND LEB. VAL. BRANCH.

	Tons. Cwt
From St. Clair.	31,764 05
" Port Carbon.	8,656 08
" Pottsville.	1,375 19
" Schuylkill Haven.	31,202 17
" Pine Grove.	6,214 10
" Tamaqua.	17,410 02
" Harrisburg.	3 19
" Dauphin.	6,435 17
Total	103,063 17

FOR SHIPMENT BY CANAL.

Passing Frackville Scales	11,534 00
" Mill Creek "	2,174 03
" Schuylkill Valley Scales	1,302 04
" Mt. Carbon "	2,570 15
" Cressona "	13,677 19
" Pine Grove "	
" Tamaqua "	2,986 04
Total	34,145 05

SHIPPED WESTWARD VIA NORTHERN CENTRAL RAILROAD.

Passing Locust Gap.	1,770 13
" Shamokin.	3,664 02
" Herndon.	
Total	5,434 15

SHIPPED WEST OR SOUTH FROM PINE GROVE.

Via Schuylkill & Susquehanna R. R.	1,390 04
" Lebanon & Pine Grove Branch	1,213 00
Total	2,603 04

CONSUMED ON LATERALS.

From Frackville Scales.	865 05
" Mill Creek "	750 05
" Schuylkill Valley Scales.	469 08
" Mt. Carbon "	891 19
" Cressona "	251 04
" Pine Grove "	135 02
" Tamaqua "	385 12
Total	3,751 15

LEHIGH AND WYOMING COAL.

Received via Allentown, E. Penn'a br.	115 14
" " Alburtis, " "	30 10
" " Oreland, G. & N. Br.	1,460 16
" " Connecting R. R.	
" " Willow Street R. R.	299 01
Total	1,906 01

BITUMINOUS.

From Harrisburg.	6,814 17
" Connecting R. R., G. & N. Br.	
" Junction R. R.	117 10
Total	6,932 07

COAL FOR COMPANY'S USE.

Anthracite	3 753 15
Bituminous	373 03
Total.	4,126 18

RECAPITULATION.

	Total for Week.	Corresponding week last Year.	
Passing over Main Line and Leb. Val Branch	103 063 17	111,458 05	d 8,394 08
For Shipment by Canal	34,145 05	19,708 03	i 14,437 02
Shipped Westward via Northern Central R. R.	5,434 15	3,246 00	d 2,188 15
Shipped West or South from Pine Grove	2,603 04	929 11	i 1,673 13
Consumed on Laterals	3,751 15	2,0 6 10	i 1,6 5 05
Lehigh and Wyoming Coal	1,906 01	385 17	i 1,520 04
Total Anthracite paying fr'gt	150 904 17	137,794 06	i 13,110 11
Bituminous	6,932 07	8,253 19	d 1.321 12
Total of all kinds paying fr'gt	157,837 04	146,048 05	i 11,788 19
Coal for Company's use	4,126 18	3,124 17	i 1,002 01
Total Tonnage for Week	161,964 02	149.173 02	i 12,791 00
Since Dec. 1, 1870	3.3089500	2146637 10	i1162267 10
Total to date	3,47086902	2295810 12	i1175058 10

SHIPPED BY CANAL.

	Total for Week.	Corresponding week last Year.	
From Schuylkill Haven	33,013 15	17,367 00	i 15,646 15
" Port Clinton	2,273 00	931 0	i 1,342 00
Total Tonnage per Week	35,2 6 15	18,298 00	i 16,988 15
Since Dec. 1, 1870	501,252 03	110,735 11	i 390516 12
Total to date	536 538 18	129,033 11	i 40780, 07

Schuylkill Canal.

Report of coal transported over the Schuylkill Canal for the week ending Saturday, August 12, 1871.

	Tons. Cwt.
From Port Carbon	
" Pottsville	
" Schuylkill Haven	33,013 15
" Port Clinton	2,273 00
Total for week.	35,286 15
Previously this year	501,252 03
Total	536,538 18
To same time last year	124,654 11

Report of Coal Transported over Lehigh Valley Railroad

Report of coal tonnage for week ending August 12, 1871, previously this season, compared with same time last year:

WHERE SHIPPED FROM.	WEEK. Tons. Cwt.	TOTAL Tons. Cwt.
Total Wyoming	18,938 16	305,346 10
" Hazleton	52,830 09	551,244 15
" Upper Lehigh	138 13	1.023 5
" Beaver Meadow	21.819 04	195,88 11
" Mahanoy	11,254 09	327 320 01
" Mauch Chunk	209 14	6,623 16
" Sullivan & Erie.		173 05
Total Anthracite	105,250 16	1,387,616 03
Bituminous Coal from all sources	7,459 00	245,813 00
Total by rail and canal	112,709 16	1,633,429 03
Same time last year	82,097 13	2,431,764 19
Increase	30,612 03	
Decrease		798,335 16
Forwarded East from Mauch Chunk by rail	78,707 07	1,114,278 11
Same time last year	59,994 08	1,944,384 06
Increase	18,712 19	
Decrease		830,105 15

RECAPITULATION.

Forwarded East from Mauch Chunk by rail	78,707 07	1,114,278 11
To N. C. R. R., at Mount Carmel	616 09	3,584 02
Forwarded North from L. & B. Junction	12,930 08	140,239 09
To L. & S. R. R. at Packerton for rail		
Delivered at M'h Chunk	153 15	3,693 11
Delivered on line of road above Mauch Chunk	54 05	645 14
Delivered above Mauch Chunk	350 00	6,192 10
for use of L. V. R.R.	1,689 03	31,530 00
To L. & S. R. R., at Penn Hav., for railroad		94 10
Do for canal	6,861 19	61,408 16
At M.Chunk for canal	3,867 10	25,949 00
Total Anthracite	105,250 16	1,387,616 03
Bituminous Coal	7,459 00	245,813 00
Total all kinds	112,709 16	1,633,429 03

This report includes all Bituminous Coal carried over the Lehigh Valley and P. & N. Y. Railroads from December 1st, 1870, to date.

Shamokin Coal Trade.

For week ending August 12, 1871	12 867 11
Same time last year	13.859 02
Increase	
Decrease	991 11
Total amount shipped to date	387.343 09
Same time last year	249.001 04
Increase	138,341 16
Decrease	

Delaware, Lackawanna & Western Rail Road Company.

Coal transported on the Delaware, Lackawanna and Western R. R. for week ending August 12, 1871.

	Week. Tons Cwt.	Year. Tons. Cwt.
Shipped North	20,203 02	208,010 11
Shipped South	45,877 09	497 200 14
Total	66,080 11	705 211 05
For the corresponding time last year :		
Shipped North	19.740 10	445,120 04
Shipped South	33,775 02	1.088 694 08
Total	53.515 12	1,533,814 12
Increase	12,564 19	
Decrease		828,603 07

Delaware and Hudson Canal Company.

Coal mined and forwarded by the Delaware and Hudson Canal Campany for the week ending Saturday, August 12, 1871.

	WEEK.	SEASON.
North	54,847 04	609,491 03
South	10,097 08	146,793 12
Total	64,944 12	756,284 15
Corresponding time in 1870:		
North	45 218 14	1,391,761 02
South	12,088 04	283,041 18
Total	57,306 18	1,674,803 00
Increase North	7,637 14	
Decrease South		
Total decrease		918,518 05

Delaware and Hudson Canal Company.

The following is a statement of Coal transported by the Delaware and Hudson Canal Co., for the week ending August 12, 1871.

	WEEK.	SEASON.
By Delaware and Hud. Canal,	39,780 00	430,637 00
By Railroad East,	7,780 00	158,775 00
" West,	3,670 00	48,018 00
" South,	10,097 00	146,794 00
TOTAL TONS,	61,287 00	784,284 00
For the same period last year.		
By Delaware and Hudson Canal	52,670 00	933,367 00
By Railroad East,	6483 00	234 828 00
" West,	884 00	49,318 00
" South,	12088 00	283,042 00
TOTAL TONS,	72,125 00	1,500,555 00
Decrease	705,550 00	

Huntington and Broad Top R. R. Co.

For week ending Aug 12, 1871	3,028 tons.
Same time last year	5,790 "
Increase	....
Decrease	2,762 "
Total amount shipped to date	213,975 "
Same time last year	191,020 "
Increase	22,955 "
Decrease	

Statement of Coal Transported over Cumberland and Pennsylvania Railroad

During the week ending Saturday Aug. 12, and during the year 1871, compared with the corresponding period of 1870.

WEEK.

	To C. & O. Canal Tons. Cwt.	To B. & O. R. R. C. Tons. Cwt	Total. Tons Cwt.
1871	15,757 02	25 027 00	43,784 02
1870	14,162 11	16,961 19	31,124 10
Increase	1,594 11	8,065 01	9,659 12
Decrease			

YEAR.

1871	398,167 19	754,074 12	1,152,242 11
1870	309,528 16	506,540 16	816,069 12
Increase	88,639 03	247,533 16	336,172 17
Decrease			

Cumberland Branch

WEEK.

	To C. & O. Canal. Tons. Cwt.	To B. & O. R. R. Co Tons Cwt.	Total. Tons. Cwt.
1871	5,860 16	1,077 01	6,937 17
1870	1,793 14	2,026 02	3,819 16
Increase	4,067 02		3,118 01
Decrease		949 01	

YEAR.

1871	114,986 01	45,772 03	160,758 04
1870	57,067 15	61,744 14	118,812 09
Increase	57,918 06		41,945 15
Decrease		15,972 11	

Prices of Coal by the Cargo.

[CORRECTED WEEKLY.]

	AT NEW YORK, Aug. 11. R. A.	W. A.	AT PHILADELPHIA, Aug 23. R. A.	W. A.
SCHUYLKILL.				
Lump	$— —	$— —	— —	— —
Steamer	6 00	— —	— —	4 50
Broken	6 00	— —	— —	— —
Egg	6 25 —	— —	5 00	— — 4 75
Stove	6 50 —	— —	5 00	— — 5 00
Chestnut	5 75 —	— —	— —	— —
Pea	— —	— —	— —	— —
LEHIGH.				
Lump, (along side)	6 75	— —	— —	— —
Broken	6 15	— —	— —	— —
Egg	6 00	— —	— —	— —
Stove	6 50	— —	— —	— —
Chestnut	5 50	— —	— —	— —
Pea	— —	— —	— —	— —
SPECIAL COALS.*				
Diamond Vein	R. A. 5 50@7 00		— —	— —
New England	"	—	— —	— —
Locust Mountain	W. A.	6 50	— —	— —
Honey Brook, Le'h	W. A.	5 00@6 25	— —	— —
Spring Mountain	" "	5 00@6 25	— —	— —
Sugar Creek	" "	5 00@6 25	— —	— —
Sugar Loaf	" "	5 00@6 25	— —	— —
Old Comp'y's.	" "	5 00@6 25	— —	— —
Cross Creek	" "	5 00@6 25	— —	— —
Room Run	" "	5 00@6 25	— —	— —
Girardville	" "	—	— —	— —
McMichael	" "	— —	— —	— —
Shamokin	" "	5 25	— —	— —
Lykens Valley	" "	5 75	— —	— —
Broad Top	" "	5 25	— —	— —
Hill & Harris	" "	— —	— —	— —
Henry Clay	" "	— —	— —	— —
Powelton	"	5 25	— —	— —

*Dealers in these coals may be found in our advertising columns.

Line Prices for Coal August, 1871,

	Lump	Broken	Egg	Stove	Ches't
At Mauch Chunk	4.50	4.00	4 00	4.25	3.50
" Wilkesbarre,	3 75	3.75	3.75	4.00	3.25

Company Coals.

August, 1871.

	L.	Str.	Gra.	Eg.	Sto.	Ches.
Scranton E. Port	4 80	4 90	5 10	5 50	5 75	4 75
*Pittston at Newburgh	4 80	4 80	5 00	5 10	5 40	4 60
*Lackawana at Rond't	4 70	4 90	5 15	5 40	5 75	4 85
Wilk'b're at Hoboken	4 65	4 65	5 00	5 25	5 75	4 75
Old Co. Lehigh at Pt John'n	6 25	— —	5 65	5 50	6 00	5 00
Lehigh at Eliz. Port	6 25	— —	5 65	5 50	6 00	5 00

For freights to different points see "Freights."
* To contractors.

Prices at Baltimore—August, 1871.

Wholesale Prices to Trade.

Wilkesbarre, by cargo or car load	$5 25@5 50
Pittston and Plymouth, do	5 25@5 40
Shamokin Red or White Ash, do	5 25@5 40
Lykens Valley Red Ash, do	— —@5 80
Zerba Valley	— —@— —
Treverton	— —@— —
By retail, all kinds per ton of 2240 lbs	7 00@7 50
Georges Creek & Cumberland f. o. b. at Locust Point for cargoes	— —@4 75
Fairmount and Clarksburg gas, f. c. b. at L. Point	6 00@6 50

BITUMINOUS COALS.

Kittaning Coal Co.'s Phœnix Vein..f.o.b. at Phila	$ —
Lemon " " "	—
Cumberland Vein Coal	—
Consolidation Coal Co.'s on board N. Y.	6 75
Maryland Coal Co. " "	6 75

Prices at Georget'n, D.C., & Alexandria, Va.

August, 1871.

George's Creek and Cumberland f. o. b. for shipping...$4 50@4 60.

Prices at Havre de Grace, Md.

Wilkesbarre and other White Ash for cargoes	$5 50@5 75
Lykens Valley	6 00@6 25
Shamokin Red or White Ash	5 50@6 00
Trevorton and Zerba Valley	— —@— —

Prices of Gas Coals.

August, 1871.

PROVINCIAL.

Corrected weekly by Louis J. Bellioni, Jr., 41-43 Pine st., N. Y

Duty, $1 25, gold	Coarse	Slack.
Block House	$1 75 @-1 75	
Gowrie	1 75 @-1 75	

Corrected by Bird, Perkins & Job, 86 South street.

	Coarse.	Culm of Coal.
Pictou	$2 25	@1 25
Sydney	2 25	@- 80
Langan	1 60	@- 80
Little Glace Bay	1 60	@1 00
Caledonia	1 60	@- 80

A discount from the prices of the coarse Coal on purchase of 5000 tons and upwards. Duty $1 25 per ton, gold, on the coarse coal. 25 per cent. ad valorem on the Culm of Coal.

AMERICAN.

	Currency.
Westmoreland	$7 00 @- —
Fairmount Gas Coal Co. of N. Y.	7 00 @- —
Despard Coal Co	7 00 @- —
Penn	7 00 @- —
Newburg Orrel Gas	— — @- —
West Fairmount Gas Coal	7 00 @- —

AT PHILADELPHIA.

Powelton	$6 75

TO NEW YORK.

Provincial.	
Sidney	$ —
Langan	—
Cow Bay	—
Port Caledonia	—
Little Glace Bay	—

Freights.—August, 1871

TO EASTERN PORTS.	Cumberland: From Georgetown.	Cumberland: From Baltimore.	Anthracite: From Philada.	Anthracite: From East Port, Port Johnston, and Hoboken.	Anthracite: From Newburg...	Anthracite: From Rondout...
Amesbury			$2 50	$1 75		
Bangor	$2 75		2 30	1 75		
Bath	2 75	2 65	2 30	1 75		
Boston	2 60	2 60	2 25	2 00	180	1 80
Bridgeport	2 25	2 30	1 80	1 00	1 10	1 25
Bristol		2 60	2 00	1 40		1 55
Cambridgeport			2 75	2 00		
Derby			2 00	1 20		
Dighton	2 30	2 35	2 30	— —		
East Cambridge			2 35	2 00		
Fall River	2 25	2 30	2 25	1 40	1 40	
Hackensack			1 75	90		
Hartford	2 75	3 00	2 30	1 50		
Jersey City		2 60	1 40	50	70	
Middletown			2 25	1 25		
Mystic			— —	1 10		
New Bedford	2 50	2 35	2 00	1 40		
Newburyport	2 75		2 40	1 60		
New Haven	2 25	2 30	1 90	1 00	1 10	1 35
New London	2 25	2 30	1 76	1 15		2 20
Newport			2 00	1 40		1 25
New York	2 00	1 90	1 35	55	70	1 40
Norwalk		2 30	1 80	1 00	1 10	65
Norwich	2 25	2 30	2 00	1 20	1 40	
Pawtucket	2 50	2 50	2 30	1 40		1 50
Portland	2 50	2 60	2 30	1 85		1 65
Portsmouth, N. H	2 75	2 75	1 45	1 80		2 00
Providence	2 25	2 30	2 00	1 40	1 50	1 50
Rockport			2 10			
Saco	2 75		2 25	1 75		
Sag Harbor			1 70	1 20		
Salem	2 60	2 65	2 35	1 80		
Stamford			2 00	1 00	1 10	
Stonington			2 00	1 25	1 20	
Taunton			2 30	1 50		1 40
Warren			— —	1 30		
Washington			1 25			
TO RIVER PORTS.						
Albany		80			55	
Catskill		70			50	
Cocksackie		70			50	
Coeyman's		70			65	
Cold Spring	2 20	70			50	
Fishkill		70	1 60		30	
Haverstraw					60	
Hudson	2 20	2 25			40	
New York					60	
Nyack			1 75		30	
Poughkeepsie					50	
Rhinebeck						
Rondout					75	
Saugerties			1 60		40	
Sing Sing					75	
Stuyvesant					75	
Tarrytown					75	
Troy					55	
West Point			1 75			
Yonkers					60	

Prices of Foreign Coals.

August, 1871.

Duty $1 25 per ton.

Corrected weekly by PARMELE BROS., No 32 Pine street, N. Y.

Liverpool Gas Caking	$ 8 00@— —
" " Cannel	10 50@12 00
" House "	— —@16 00
" Orrel	12 00@14 00

Per ton 2,240 lbs., ex-ship.

PRICES FROM YARD.

Liverpool House Orrel, screened	$16 00@17 50
" Cannel, "	18 00@20 00

Per ton 2.000 lbs. delivered.

Foreign and Provincial Freights.

August, 1871.

Foreign.	
Newcastle and Ports on Tyne, per keel of 21 1-5 tons	£14 00@£16 00
Liverpool, 5 per cent primage	15s @15 ton.

Rates of Transportation to Tide Water.

BY RAILROAD.

TO PORT RICHMOND, PHILADELPHIA.

Philadelphia and Reading Railroad, from Schuylkill Haven for consumption	$1 95
For reshipment	1 85

MAUCH CHUNK TO ELIZABETHPORT.

L. V. Railroad from Mauch Chunk to Phillipsburgh	$0 85
C. R. R., N. J., Phillipsburgh to Elizabethport	1 26
Shipping expenses at Elizabethport	25
Wharfage	10
Total	$2 46

MAUCH CHUNK TO PORT JOHNSON.

L. V. R.R., or L. & S. R.R. from M. C. to Phillipsb'g	$0 85
C. R. R., of N. J., Phillipsburgh to Pt. Johnson	1 26
Shipping expenses	25
Wharfage	10
Total	$2 46

TO HOBOKEN.

L. V. R. R., Mauch Chunk to Phillipsburgh	$ 85
Morris & Essex R. R. Phillipsburgh to Hoboken	1 25
Shipping expenses	20
Warfage	16
Total	$2 46

TO SOUTH AMBOY.

L. V. R. R.	85
B. & D. R. R. } Cam. & Am R. R. }	1 21
Shipping Expenses,	35
Total	$2 41

PENN HAVEN TO ELIZABETHPORT.

L. V. R R Penn Haven to Phillipsburgh	20
C. RR. of N. J. Philipsburgh to Elizabethport	126
Shipping expenses	25
Wharfage	10
Total	$ 2 51

BY CANAL.

Via Schuylkill Canal.

TO PHILADELPHIA.

From Schuylkill Haven	Toll..$1.25	Freight, 90c	$2 15
" Port Carbon			
" Port Clinton	" 1.18	" 85c	2 02

Drawback 15 cents during August.

TO NEW YORK.

From Schuylkill Haven ....Toll 1 10 Freight..$1 85..$2 95

The Rates of Toll on Lump and Steamer Coal will be ten per cent less than the above rates. The charge will be per ton of 2240 lbs. No charge less than Forty Cents per ton will be made for any distance. A drawback of thirty cents is allowed on all coal passing Fairmount Locks used at Philadelphia and vicinity.

Via Lehigh Canal.

TO PHILADELPHIA

Lehigh Canal	$ 76
Freight and towage	1 10
Total	$1 86

TO NEW YORK.

Lehigh Canal	$1 48
Morris Canal } Freight } Towing }	208
Total	$2 56

TO JERSEY CITY.

Lehigh Canal	$ 48
Morris Canal } Freight }	2 06
For re-shipment	2 54

Via Delaware and Raritan Canal.

TO NEW YORK.

Lehigh Canal	$ 76
Delaware Division Canal	38
Delaware and Raritan Canal	
Freight	1 25
Towage	20
Total	$2 59

TO NEW BRUNSWICK.

Lehigh Canal	$ 76
Delaware Division Canal	
Delaware and Raritan Canal	38
Freight	1 25
Total	$2 39

MARKET REVIEW.

FOR THE WEEK ENDING AUGUST 18, 1871.

IRON.—The market for Scotch Pig has been quite active, and there is a decidedly firmer feeling prevalent. Advices from Europe quote an advance of 2@4 shillings ₱ ton, and prices here show a corresponding advance, the market closing strong at $33 for Eglington, $34 50@$35 for Glengarnock, $35@$35 50 for Gartsherrie, and $36 50 for Coltness—sales have been made of 500 tons Glengarnock at $33 50@$34, and 800 do. to arrive, on private terms—at the close, $34 was offered and refused for 1,000 tons Glengarnock on the spot. American continues in request, and, with very little available stock, prices

have appreciated We quote: No. 1, $36@37; and No. 2, $31@$35. There has been a little more inquiry for Wrought Scrap, and we notice sales of 600 tones at a private price. New Rails remain quiet, but prices are unchanged—170 tons Old Double-headed sold on private terms. The market for Bar, etc., from store, is steady, at the advance announced in our last, though without increase in business—see our revised quotations. American R. G. Sheet from Agents' hands may be quoted 5¾@6¼c., as to size, which is higher.

LEAD.—Pig remains very dull, and we hear of no sales; prices are nominally as before, say, $6 65@$6 10, gold, for ordinary foreign. Bar, 9¼c.; Sheet and Pipe, 10¼c., and Tin-lined pipe, 15c.—less 10 ℔ cent. to the Trade.

COPPER.—New Sheathing is steady at 30c., and Bronze and Yellow Metal Sheathing, 22c., cash. Ingot has become quiet, but retains its firmness; small sales Lake have been made at 22½@23c. There is now nothing offering for future delivery.

SPELTER.—The demand for parcels of Foreign on the spot is light, but there is considerable inquiry for lots for future delivery, and sales have been made of 75 tons Silesian at 6c., gold, for ordinary brands, and 6¼@6½c. for special brands.

STEEL.—There are no changes in our store quotations—business moderate, and stocks good.

TIN.—There is less demand for Pig, and the market has become very quiet, and we have heard of no business; holders, however, are quite firm at 36½c. for Straits (36¼c. refused), 35¼@35½c. for English, and 40½@41c. for Banca, all gold. We have no late cable quotations from the English market; at Singapore the price is advanced to $34 25 ℔ picul. Plates, too, have become comparatively quiet, but prices remain steady; sales have been made of 900 bxs. Charcoal Tin at $8 6½c. for I. C.; 500 do. Charcoal Terne, $8 12½; 200 do. $8 25; and 300 do. B. C. Coke Terne, $6 37½, all gold.

ZINC.—There have been no sales of Mosselmann Sheet, at 8¼c., less 4 ℔ cent., gold, the advance noted in our last.—from store, for currency, No. 9 brings 9c., cash; American, 6½c.@7c.; French, 9½c.@10c¼.; Sheet, 9c.; Manganese, 4c.@4½c.

METALS.

NEW YORK, Aug. 16, 1871.

IRON.—Duty: Bars, 1 to 1¼ cents ℔ lb; Railroad, 70 cents ℔ 100 lbs.; Boiler and Plate, 1¼ cents ℔ lb; Sheet, Band, Hoop, and Scroll, 1¼ to 1¾ cents ℔ lb; Pig, $7 ℔ ton; Polished Sheet, 3 cts. ℔ lb; Galvanized 2½; Scrap Cast, $6; Wrought, $8 per ton.

	Store Prices.
Pig, Scotch No. 1, ℔ ton	33 00@36 50
Pig, American, No. 1	36 00@37 00
Pig, American, No. 2	34 00@35 00
Pig, American, Forge	33 00@34 00
Bar Refined, English and American	74 00@75 00
Bar Swedes, assorted sizes (gold)	85 00@100 00
	Store Prices, Cash.
Bar, Swedes	105 00@120 00
Bar, Refined, ord'y sizes	80 00@— —
Bar, Refined, ¼ @ 5-16 inch	— —@ 85 00
Bar, Common	— —@ 87 50
Scroll	100 00@130 00
Ovals and half-round	97 50@122 00
Band	— —@ 95 —
Horse Shoe	95 00@100 00
Rods, ⅜ to 3-16 inch	85 00@120 —
Hoop	105 00@145 00
Nail rod	— —@6¾ —
Sheet, Russia, as to assortment (gold)	— —@12½
Sheet, Single, D. and T. Common	—4½@— 5¾
Sheet, D. an I T. Charcoal	—5¾@—6¼
Sheet, Galv'd, Nos. 14 to 25 ..... 30 ct. dis.	12@14c ℔
" " Nos. 27, 28, and 29 ..... 30 ct. dis.	15@14c ℔
Rails, English (gold), ℔ ton	57 00 @— —
Rails, American, at Works in Pa	69 00 @71 00

STEEL.—Duty: Bars and ingots, valued at 7 cents ℔ lb or under, 2¼ cents; over 7 cents and not above 11, 3 cents ℔ lb; over 11 cents, 3¼ cents ℔ lb, and 10 ℔ cent ad val. (Store prices.)

English Cast (2d and 1st quality) ℔ lb	— 15	@— 18
English Spring (2d and 1st quality)	— 7	@— 10
English Blister (2d and 1st quality)	— 10	@— 17
English Machinery	— 11	@— 13
English German (2d and 1st quality)	— 10½	@— 12
American Blister "Black Diamond"	— —	@— 12
American, Cast, Tool do.	— 15	@— 16
American, Spring, do.	— 9	@— 11
American Machinery, do.	— 10	@— 11
American German, do.	— 9	@— 11

COPPER.—Duty: Pig, Bar, and Ingot, 5; old Copper 4 cents ℔ lb; Manufactured, 45 per cent. ad val.

	All Cash.
Copper, New Sheathing, ℔ lb	— @— 30
Copper Bolts	— @— 32
Copper Braziers, 16oz. and over	— @— 32
Copper Nails	30 @— 38
Copper, Old Sheathing, &c. mixed lots	— @— 19
Copper, old, for chemical purposes, 14@16 oz	20 @— 21
Copper, American Ingot	22½ @— 23
Yellow Metal, New Sheathing & Bronze	— @— 22
Yellow Metal Bolts	24 @— —
Yellow Metal Nails	— @— 22

LEAD.—Duty: Pig, $2 ℔ 100 lbs.; old Lead, 1½ cents ℔ lb; Pipe and Sheet, 2¼ cents ℔ lb.

Galena, ℔ 100 lbs	$— @—
Spanish (gold)	6 15 @6 10
German, do.	6 65 @6 10
English, do.	6 15 @6 50
Bar (net)	9 25 @ —
Pipe (net)	— — @10 25
Sheet	— — @10 25

Colwell, Shaw & Willard Tin-Lined Lead Pipe 15 cts. ℔ lb.

SPELTER—Duty: In Pigs, Bars & Plates, $1.50 p. 100 lb

Plates, Foreign (godd) p. 100 lb.	5 75 @ 6 12½
Plates, Domestic p. lb.	— 7 @— 11

TIN.—Duty: Pig, Bars, and Blocks, 15 ℔ cent. ad val.; Plate and Sheets and Terne Plates, 25 ℔ cent.; Roofing 25. ad val.

	Gold ℔ lb.
Banca	40½@41
Straits	36¼@36½
English	35⅛@35¼

PLATES. *Fair to Good Brands.*	*Gold.*	*Currency.*
I. C. Charcoal, ℔ box	$8 62½@9 00	$10 25 @10 75
I.C. Coke	7 50 @8 50	9 00 @10 00
Coke Terne	6 25 @7 50	7 25 @9 00
Charcoal Terne	8 00 @8 50	9 50 @10 00

ZINC—Duty: Pig or Block, $1 50 ℔ 100 lb.; Sheet, 2½cts. ℔ lb.
Sheet, No.9 Foreign ℔ lb. — @— — 9

San Francisco Stock Market.

"By Telegraph."

The report of the San Francisco Mining Stock Market is dated August 15th, first Board. With the exception of Kentuck and Chollar, the market is weaker. The transactions of the Board were more numerous than for some time past. On the 10th inst. Imperial was sold at $29, and Amador $265 per share. Hale & Norcross receives more than an average share of attention from the Board, if we may judge from the language of a correspondent, who says: "The dextrous manipulation of Hale & Norcross in the Stock Board is the theme of much flattering comment among outsiders. It opened at $115 this morning, run up to $127½, then down to $104, at which it was offered with no "takers." If our friends keep on in that way, we shall begin to think that they are afflicted with the "ring" disease, now so prevalent in New York.

Savage	39
Yellow Jacket	44
Kentuck	113
Chollar Potosi	33
Gould & Curry	107
Belcher	227
Imperial	No sales
Amador	No Sales
Crown Point	292½
Hale & Norcross	—

Mining Stocks.

NEW YORK, August 17, 1871.

The following, as furnished by the Mining Stock Board this A. M. is almost a counter part of the quotations given in our last. Benton has slightly depreciated, and that is the only noteworthy change in the whole list. No sales.

GOLD STOCKS.

	BID.	ASKED.
American Flag	10	—
Bates & Baxter	25	—
Benton	—	7
Black Hawk	35	—
Central Gold	—	9
Cons Gregory	30	50
Grass Valley	7	—
Gunnell	15	—
Holman	—	—
La Crosse	18	22
Liberty	—	3
Maripo-a prf	—	—
Montana	—	—
Rocky Mount	—	5
Quartz Hill	—	31
Smith & Parmlee	—	45
N. Y. & Eldorado	—	—

Petroleum is firmer. Bergen Coal and Oil, New York and Allegheny, Northern Light and Second National have decidedly advanced. "Home" is quoted 5c. higher. On the 14th inst, 1,000 shares of Home changed hands at $1 60, which is the only transaction of the Board for the week. The report is as follows:

PETROLEUM STOCKS.

	BID.	ASKED.
Bennehoff Run	20	—
Bergen Coal and Oil	20	—
Bliven Oil	—	—
Blood Farm	10	50
Breevoort	50	53
Buchanan Farm	40	—
Central	60	65
Clinton	—	—
Home	165	—
National	—	—
New York & Allegheny	81	200
Northern Light	35	—
Phillips Pet	—	15
Pit ole Creek	—	101
Rathbone Oil	20	25
Rynd Farm	35	—
Second National	—	—
Sherman & B	—	—
Tarr Farm	25	—
United Petroleum Farms	28	—
United States	—	65
Hoffman	—	—

Weekly Slate Trade Report—Hydeville.

ROOFING SLATE.

Week ending Aug. 12, 1871.

NAME OF COMPANY.	WEEK.	PREVIOUSLY.	TOTAL FOR YEAR.
Eagle Slate Co	35	3315	3350
Western Vermont Slate Co	....	514	514
Blue Slate Co	58	1670	1 728
The Evergreen Slate Co	52	3404	3456
Forest Mining Slate Co	4	444	448
West Castleton Slate Co	....	....	....
E. D. Billings	40	909	949
R. M. Copeland	....	404	404

VERMONT SLATE TRADE.

REPORT of Slate Shipped from Middle Granville, N. Y., via the R. & S. R. R., for the week ending Aug. 5, and for the year 1871.

ROOFING SLATE.

NO. OF SQUARES.	Week.	Prev'ly.	Year.
†Penrhyn Slate Co	595	2365	3960
New York *and Middle Granville Slate Co.	175	3035	3110
†American Slate Co	....	....	...
Benj. Williams	..	980	980
Jones & Williams	5	150	155
Eagle Slate Co	....	270	270
Mettowee Slate Co	60	605	665
Albany Slate Co	....	475	475
H. W. Hughes	....	....	....
Total	....	....	....

MILL STOCK, MANTLES &C.

NO OF CASES SHIPPED BY	Week.	Prev'ly.	Total.
Eagle Slate Co	....	....	....
Penrhyn Slate Co	203	2847	3050

BLACK BOARDS.

NO. OF CASES.	Week.	Prev'ly.	Total.
Eagle Slate Co	....	....	....
Penrhyn Slate Co	....	....	....

MILL STOCK, &C.

NO. OF CARS SHIPPED BY,	WEEK.	PREV'Y.	YEAR.
Eagle Slate Co	2	25	27
Penrhyn Slate Co	....	....	....

* Sales made together this season.
† Consolidated Sales.

The Screw Rudder.

A NEW invention has just been patented in Naples by Mr. SALVATOR DE MARIN. The screw steamers can direct their course with this new invention by the power of the screw alone, and dispense entirely with the rudder, so that instead of losing part of the power on account of the resistance given by the rudder, the screw-rudder increases the power; besides the rudder can only act when the vessel is in motion, whilst the screw-rudder will make the vessel turn on itself when standing still. The rudder frequently becomes useless against sea and wind, but it appears that the screw-rudder serves and follows the will of the captain, because it gives effective motions, and not motions which are the result of power and resistance. The vessel going backwards obtains by this rudder of the screw advantages entirely new in navigation, and can be directed at will; and when going forward the system presents also some new advantages, besides giving great improvements on the motion obtained by ordinary rudders, being much more powerful, and the turnings much shorter and more rapid. The screw-rudder can easily be applied to every screw steamer, either mixed or armor-vessel, very little changes being required; and for men-of-war, the dispensing of the rudder will place the motion of the vessel more under protection from hostile projectiles. It is also a great advantage in case of the vessel being thrown ashore. The Italian Government is about to try the necessary experiments for its application.—*Mechanics' Magazine.*

WE clip from an "exchange" the following account of the great steel rail mill of the Bethlehem Iron Company, at Bethlehem, Pa.:

The new steel rail mill at Bethlehem, Pa., now erecting by the Bethlehem Manufacturing Company, under the direction of JOHN FRITZ, their chief engineer and superintendent, will be, when done, the largest in this country, and one of the largest in existence. It consists of a building 105 feet wide, spanned by an iron and slate roof, without supporters. It is 30 feet high to the eaves, and is in the shape of a cross, of which the long arm will be 900 feet, and the short arms 142 feet each, making 1184 by 105 feet area, or nearly three acres covered. This is only surpassed by the mill at Creusot, in France, which consists of three buildings, 60 by 1400 feet each.

The capacity of the works is to make 300 tons of steel ingots per day; but, at present, machinery will be erected for rolling but 100 tons of rails, or more than double the capacity of the largest mill yet erected. There will be 8 5-ton converters, and 2 train rolls, one of 24 inches, and 1 of 28 inches diameter, driven by two condensing engines of 48 and 56 inches diameter of cylinders, and 44 and 48 inches stroke.

This mill will be remarkable, not only for its enormous size and capacity, but for the many new labor-saving conveniences introduced into the design of the plan by the engineer, MR. FRITZ, who has examined personally all the Bessemer steel works both here and abroad before designing this.

It is the opinion of experts who have seen it, that it will turn out more tons of steel rail, with less manual labor, than any other mill has ever done.

Transit of Venus.

AN appeal is to be made to the English Government for a grant of £5,000 in aid of photographic observations of the forthcoming transit of Venus; it is believed that the grant will be obtained.

DEPARTMENT OF POPULAR SCIENCE.

Darwin's Hypothesis of the Origin of Species.

[III.]

IN the last article I explained *the law of multiplication*, according to which every species tends to increase in geometrical ratio, and even the slowest-breeding species would in a few centuries fill the world. This is the first proposition of the DARWINIAN argument.

2. Nevertheless, it is evident that this enormous increase of numbers does not actually take place. Some species dwindle or disappear; none have ever overrun the world; and for longer periods than those I have mentioned the actual number of individuals of a given species in any country is stationary, or nearly so. This may be called *the law of population*. As the rate of reproduction may be assumed to be tolerably uniform for each species, the phenomenon of a comparatively stationary population, in spite of the theoretical progression of numbers, can only be explained on the hypothesis that a large portion of the increase dies, without living long enough to produce offspring. Premature death, in a word, is the fate of the majority of individual plants and animals. The rate of breeding can have but a subordinate influence upon the number of individuals existing at any time on a given area. The slowest breeders have long ago reached their maximum population; and the increase or diminution of that population depends, not upon reproduction so much as upon other conditions. What these are, we shall presently inquire. It is sufficient to say here, that of the individuals born, some die and others survive; and hence existence becomes a struggle or competition; a struggle as against the natural conditions of climate, food and enemies; a competition, as against other individuals of the same species, hunting for the same food and fighting or avoiding the same enemies. This is what we so frequently hear of as the struggle for life. We may perhaps call it, for variety, *the law of competition*.

3. Now what can cause the premature death of individuals? We may safely assume the following principal causes:

a. Accident—i. e., collision with natural forces. Thus a squirrel may spring, to escape an enemy, from one tree to another, miss his hold, and fall. Or a winged insect may be blown out to sea, and finally drowned.

b. Climate, such as a very inclement winter.

c. Lack of food—of the means to obtain it.

d. Natural enemies.

In individual instances, these causes may operate without apparent discrimination; but in the long run, it is evident that the weakest individuals will suffer most from them. By weakest, I mean least fitted to cope with each of these causes. Thus, on a windy coast, two classes of insects would have the advantage over all others, in escaping drowning, those who did not fly at all, and those who had very strong wings. Either swiftness for escape or strength for defence, or peculiar facilities for hiding, or an unpleasant odor, or a disagreeable taste, might protect individuals against enemies; and those individuals which were thus protected would have the best chance to survive and produce offspring.

4. Here comes in a fourth law—*Variation*. It is a universal fact that offspring do not exactly resemble their parents. Every individual differs in some respect from every other. Of a large number of individuals, therefore, exposed to the causes we have mentioned, a portion would certainly be better fitted than the remainder to survive.

5. *Transmission.*—But an equally universal fact is, that offspring do resemble their parents in most particulars. Qualities and features are hereditary; and where this principle is intensified by close interbreeding through many generations, and by careful selection of parents possessing certain peculiarities, these peculiarities become characteristic of whole races. We see this roughly illustrated in the races of man; and much more perfectly in the artificial varieties of plants and domestic animals.

6. *Survival of the Fittest Types.*—If we consider, then, the individuals which survive the causes of premature death, we shall conclude that their offspring will probably vary within the limits of general resemblance, but a portion will reproduce the peculiar characteristics of the parents. This portion will again be most likely to survive, and to transmit the protective peculiarities with still greater force to their descendants. The process thus becomes analogous to the selection practised by stock-raisers, and has received, therefore, the name of Natural Selection, or the survival of the fittest forms.

The differences between natural selection and human selection include the following:

Man selects at will those peculiarities which serve his purposes or please his fancy; nature selects those which are useful to the species.

Man secures the perpetuation of varieties by carefully preventing the access of other varieties to them; nature accomplishes this result by killing the individuals of a species which do not suit her conditions.

Man protects his artificial varieties from starvation, cold, and enemies; nature uses these and other agencies as her means of selection.

But this process of Natural Selection does not imply a personification of nature. It is something which "goes on of itself," under the operation of the laws of the material world and of vital function.

R. W. R.

The American Institute of Mining Engineers.

THE quarterly meeting of the Institute was held at Bethlehem, Pennsylvania, commencing on the 15th instant and continuing until the evening of the 17th. On Tuesday, the members from various parts of the country began to assemble at the Sun and Eagle hotels, and the first meeting was held on the same evening in a lecture-room in the Lehigh University building at South Bethlehem.

DAVID THOMAS, Esq., of Catasaqua, the President of the Institute, and the pioneer in the use of anthracite coal for the production of iron, occupied the chair.

HENRY COPPÉE, L.L. D., President of the Lehigh University, extended a cordial welcome to the members of the Institute, and placed at their disposal a fine, large room in Packer Hall for their meetings, and subsequently, in a letter to the Secretary, he offered to the Institute the permanent use of a room in the building as a depository for the books, maps and other collections which they may acquire from time to time. As all the members expected had not yet arrived, no action was taken in the matter, except a general expression of thanks.

The following members were present:

David Thomas, President,	Catasaqua, Pa.
E. B. Coxe, Vice-President,	Drifton, "
W. R. Symons,	Pottsville, "
Daniel Hoffman,	" "
Thomas M. Drown,	Philadelphia, "
Willard P. Ward,	New York, N. Y.
Ernest Ganjob,	Pottsville, Pa.
W. B. Hick,	Wilkesbarre, "
T. M. Williams,	" "
R. P. Rothwell,	" "
Lewis S. Jones,	" "
Samuel Thomas,	Catasaqua, "
George W. Maynard,	Troy, N. Y.
F. Prime, Jr.,	Easton, Pa.
B. F. Frazer,	Bethlehem, "
Martin Coryell,	Wilkesbarre, "
J. H. Harden,	" "
Edwin Pechin,	Dunbar, "
N. Friederich,	Drifton, "
Z. B. Thomas,	Newport, "
B. C. Webster,	Bethlehem, "
F. S. Vinton,	New York.
Stewart M. Back,	Boston, Mass.
John West,	Bethlehem, Pa.
B. West,	Norristown, "

Prof. F. L. VINTON, of New York, read a paper upon an apparatus for measuring the depth of a shaft, and exhibited a model of the contrivance for the inspection of the members. The apparatus was criticized, and several suggestions regarding improvements made by members. The substance of the paper and the discussion will be given hereafter. The same gentleman then read a paper on an eccentric theodolite, manufactured by the Stackpoles of New York, and at the same time exhibited a handsomely-finished instrument. Considerable discussion followed, in which Messrs. COXE, HICK, ROTHWELL, LYMANS, and others took part.

Mr. ECKLEY B. COXE, the chairman of the committee appointed at the last meeting, to devise means for lessening the enormous waste of coal in mining and preparation for market, read a preliminary report, which, after discussion, was referred back to the committee, with instructions to add such new members to the committee as they saw fit, and to take means to obtain information on the subject from European and other mines.

President THOMAS then tendered his resignation, a step to which he said that he was compelled by ill health and age. The Institute refused to accept the resignation, and Mr. THOMAS was finally induced to withdraw it, upon the condition that he should not be called upon to perform all the active duties, which, therefore, will hereafter fall upon the first Vice-President. The President then asked to be excused, and Mr. COXE, the senior Vice-President present, took the chair.

Mr. B. C. WEBSTER, President of the Lehigh Zinc Company, then invited the members to visit the mines and works of his company, and said that carriages to convey the party would be in readiness at the hotels at half-pas eight in the morning. The meeting then adjourned.

On Wednesday morning, the first thing after breakfast, the carriages, so generously provided by Mr. WEBSTER were found in front of the hotel, and the trip across the mountains began. It was the good fortune of the writer to accompany Mr. JOHN WEST, the engineer who designed the immense pumping engine for the company, and under whose superintendence the large parts of the engine were transported across the mountain and put in position at the mine. So far, no accident has happened, nor is any probable so long as Mr. WEST directs the movements.

Many important details of this engine of 110 inches diameter of cylinder, and 10 feet stroke, will be given hereafter.

After thoroughly examining the engine and boilers, the party proceeded to the mines. Canvas suits were provided, to protect the clothing, and the majority of the party went under ground, under the guidance of Messrs. WEBSTER and WEST, to inspect the massive timbering necessary to support the walls, and the irregularity in the course of numerous veins, from which such immense quantities of ore have been taken. After coming up from the workings, a portion of the party descended the pump shaft, and saw the water thrown with great force from eight holes in the bottom of the shaft, which were purposely drilled to drain the water from the workings.

After partaking of a good substantial dinner, ordered by Mr. WEBSTER at a neighboring country hotel, and reviving their spirits and energy with some excellent Heidsick, the party again took to their carriages, and were conveyed back over the mountain to the works of the company, to witness the method of treating the ore, a portion of which is made into zinc-white, and used for paint, and another portion into spelter, a large amount of which is at once rolled into sheets. A more extended account of these works will be given hereafter.

On Wednesday evening, a meeting was held in the parlor of the Sun Hotel, the members being too much fatigued to walk over to the University, a mile or more distant. Vice-President COXE occupied the chair. The council had already divided the members into classes as regular members and associates, and notice of this fact was given.

Mr. ROTHWELL then read a paper prepared by Mr. H. S. DRINKER, on the works and mines of the Lehigh Zinc Company, an abstract of which will appear hereafter. Also a paper by Mr. JOHN F. BLANDY, on Topography. Mr. GANJOB read a paper on the use and advantages of the Prop-screw Jack.

Mr. WARD exhibited and explained the use of SONTAG's apparatus for giving a free fall to the bit used in boring artesian wells. By the use of this invention it is claimed that the time and expense of boring can be much diminished. The inventor was present, but was prevented from explaining the action of his own machine, by lack of knowledge of the vernacular. The instrument is exceedingly ingenious, much more simple than that invented by KIND and CHAUDRON.

Mr. SYMONS exhibited a model of a pair of rolls for breaking coal, which was commented upon by Messrs. ROTHWELL, HICK and COXE. A general discussion upon breakers followed, and the gentlemen decided to have a pair of solid cast-steel rolls made and tested. It was thought that they would be much more durable.

The meeting adjourned at a late hour.

On Thursday morning the party visited the rail-mill and blast-furnaces of the Bethlehem Iron Co., of which Mr. FRITZ is the president. They were very politely shown through the works under the guidance of Mr. BROADHEAD, a prominent citizen of Bethlehem, and visited the large new building erected by this company for working the Bessemer process.

In the afternoon a meetingwas held at the Sun hotel for the transection of business, a report of which will appear in our next.

THE ENGINEERING AND MINING JOURNAL.

ROSSITER W. RAYMOND, Ph. D.,
WILLARD P. WARD, M. E.,
Editors.

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EDITORIAL CORRESPONDENCE.

The Cottonwood Canons.

SALT LAKE CITY, July 24, 1871.

THE other day a couple of us started on horseback (the only way to travel freely and see all you wish to see, in this region) for a trip through the Salt Lake Valley, and Little and Big Cottonwood cañons. The "State road" through the valley is a broad highway, leading to all the Mormon settlements in Southern Utah. At this season it is disagreeably dusty, especially when (as is frequently the case) a wind-storm comes through the Jordan valley, driving the dust before it in blinding clouds.

The principal mining districts now occupied in this Territory lie in the Wahsatch range, east of the Jordan, and in the Ocquirrh or West mountains, west of that river. Many of them take their names from the cañons in which they are located. Thus we have, proceeding southward along the west flank of the Wahsatch, Big Cottonwood, Little Cottonwood and American Fork districts, the latter of which is about thirty miles south of Salt Lake City, and across the Jordan valley, on the east flank of the Ocquirrh, Bingham Cañon, and on the west flank (towards Rush Valley) Stockton and Ophir or East Cañon.

The mountains are well-watered, and from each cañon a clear, rushing stream finds its way into the valley, after furnishing abundant water-power in its course, and finally supplying to the agricultural population the means of extensive irrigation.

Leaving the great highway, the road to Little Cottonwood crosses for five or six miles the low foothills, formed by the detritus washed from the mountains. These are not generally cultivated, and present to the traveller little but the dusty gray sagebrush, except in the immediate vicinity of the streams. Along the base of the steep mountain faces runs the bench or old water-line, indicating the former line of the great fresh-water basin, a small portion of which is now occupied by Salt Lake. This bench can be distinctly seen, even at a great distance, and can be followed for many miles along the mountains.

The Wahsatch range at this point consists of upturned strata of sandstone, quartzite, slate, limestone and granite—the latter apparently of sedimentary origin, like the rest. Whoever undertakes to explain the geology of the cottonwood cañons on the theory that the granite is eruptive, and forms the central mass of the upheaval, will, I suspect, be involved in serious contradictions, and will be obliged to twist the facts considerably to fit them to this notion. The general course of the strata is nearly northwest and southeast, bearing rather towards east and west, and thus crossing obliquely the geographical axis of the range, which is nearly meridional, as well as the course of the cañons, which is (windings apart) on the whole east and west. Thus in riding through the cañons, one may observe on both sides the successive strata, the edge or outcrop of each one on the southern side being further up the cañon (east) than its continuation on the northern side. The dip is usually about 60° N.E.

The scenery in the Cottonwood cañons is both grand and lovely. The Big Cottonwood cañon is wild, precipitous, narrow and tortuous. At twenty different points, as one rides along the bank of the stream, the rock masses before and behind seem to close up, and leave neither inlet nor outlet for the tumbling waters. But the reckless river, getting used to this sort of thing at last, plunges boldly towards the apparently impenetrable barrier, and lo! a narrow fissure, unseen before, opens around some jutting crag, and the flood surges through, to enter another *cul-de-sac* and escape again by a hidden outlet. Those who have admired the Devil's Gate, in Weber cañon—the most romantic point on the Union Pacific Railroad, will understand from the hint which that one spot gives, what must be the picturesque effect of this cañon, which is crowded full of such surprises. Weber cañon, in fact, has in a feeble degree many of the characteristic features of the Wahsatch scenery; but Big Cottonwood excels it in every particular. The vast overhanging peaks and cliffs on either side, rising three thousand feet or more above the road; the musical brooks that pour down their steep gorges, now leaping in cascades, now burying themselves to reappear as cool, clear springs; the stately forests of pines and aspens; and, last touch of beauty, the stains and patches of brilliant color from innumerable wild-flowers that cover acres and acres of the mountain sides with pure white and delicate blue and bright yellow and fiery red and imperial purple hues—these elements all combined, and viewed through the marvellous lens of the spotless upper air, present a picture impressive and inspiring beyond words. Each of our great mountain systems, the Alleghany, the Rocky mountains, the Wahsatch, the ranges of the great Inland Basin, the Sierra Nevada and the Coast range, has its peculiar style; but it seems to me, after seeing them all, that the Wahsatch unites more completely than any other (unless it be the Cascades of Oregon) the softness, beauty and luxuriance of the East, with the sublimity and solemn grandeur of the West—blazing splendor with delicate tint and shade—the silence of eternal summits with the melody of many waters—the bold, rugged outlines that speak of resistless power with the graceful robes of leafy rest—the glory of the sky reflected in the the glory of the flowery earth.

When it is added that the mouth of this cañon is not more than fourteen miles from Salt Lake City, and that even this short distance will soon be traversed by rail, so that the tourist can leave the cars almost at the very mouth of the cañon, it will be evident that this remarkable scenery is destined to become well known and loved by thousands of travellers. Indeed, I do not doubt that Salt Lake City, so interesting on many accounts, will be a great resort of pleasure and beauty-seekers henceforward.

But my pen has run away with me, and, disdaining the prosy mines, has revelled in themes which the engineer should, perhaps, avoid. I will force the unruly steed back again for a brief period, merely adding to the foregoing description of Big Cottonwood cañon, that Little Cottonwood is also romantic and interesting, though not in so great a degree. We ascended the latter, and were overwhelmed with admiration; but subsequently we crossed the summit ridge into Silver Fork, and so on down to Big Cottonwood, the impression of which has somewhat overlaid and obliterated our vivid feeling towards its neighbor.

At the mouth of Little Cottonwood cañon are Col. BUELL'S reduction works, comprising two Piltz furnaces. The location is magnificent, affording a fine water-power, excellent dumping-grounds, etc. The furnaces were both idle, one being just ready to start and the other being choked with a huge salamander. Half-way up the cañon we passed the works of JONES & PARDEE—one shaft-furnace, half-strangled with a salamander, but smelting bravely (though foolishly) on, to the last gasp. At the head of the cañon, about nine miles from the mouth, is the town of Central City, around which, high up on the steep mountain sides, are the silver mines, in a heavy stratum of limestone, overlying granite. At this point the mountains enclose a sort of amphitheatre, in the middle of which appears the rounded granite back of an immense *roche moutonnée*, indicating pretty distinctly that this part of the valley was hollowed out by a glacier.

The principal mine is, of course, the Emma. It is somewhat difficult, owing to the sharp litigation as to title, to get access to the workings; but a pass from the proper authority gave us admittance, to which, of his own free will and courtesy, Captain MATHEWS, the superintendent, added a cordial and hospitable welcome.

The Emma mine is a deposit enclosed in the limestone, or rather dolomite, to which allusion has been made. It seems to be lenticular in form; but no careful explorations have ever been made to determine its extent. It is reached by a tunnel and a shaft, the latter being now used for ventilation only. The ore is extracted by floors, on the *stockwerk* system, and the immense cavity is filled with heavy, squared, and mortised timbering, exactly like that employed on the Comstock lode. This cavity is now, perhaps, seventy feet long, by twenty-five or thirty broad. In height, there are ten floors (about 70 feet) above the tunnel, then thirty-eight feet of solid ground below, and below this again four floors where excavation is going on. The mine has shipped 3400 tons of ore during the past five weeks; but much of this, no doubt, was accumulated previously, when the roads were impassable. The present possessors of the mine are evidently taking out ore as fast as possible. The attempt made by Mr. LYON, an opposing claimant, to enjoin them against working, failed by the refusal of the court to grant the injunction. So, pending the decision of the LYON suit, they are making hay while the sun shines, though, at the same time, they profess to be confident that their title will be upheld.

The ore is composed of earthy carbonate of lead, and oxidized and decomposed antimonial and arsenical ores, with frequent nodules and occasional bunches or large masses of galena. Arsenical py-

rites, and arseniates of iron, resulting from its decomposition, are also present. The amount of sulphides and arsenides in the ore, even when it appears wholly decomposed, is great enough to make a preliminary roasting before smelting advisable; and the omission of this preparatory treatment is doubtless one cause of the unsatisfactory results thus far achieved by the shaft-furnaces. The gangue is principally dolomitic, sometimes interspersed through the ore, sometimes accumulated in irregular, brecciated masses, which belong to the "vein-matter," though they are not classed as ore. Silica is apparently subordinate, though it is present as a close companion of the metallic salts. There are no well-defined walls. It is seldom necessary to blast, and the process of extraction is very cheap, except in the item of timbering. The value of the ore shipped last year was $180 per ton. I judge that the present shipments are not always so rich. The galenas and carbonates are not separated, but all mixed together, and sent to Liverpool for sale, except small lots, which are now and then sold to the local smelting works for purposes of experiment.

The public estimate of the daily profits of the mine is much exaggerated. As to its probable duration, nothing can be said, in the absence of proper explorations in the mine itself. The usual course in such cases is, that the mine "weakens," long before it really gives out; the stockholders rush from the topmost extravagance of satisfaction to the bottommost depth of despair, and there is a "panic." There is little proof now as to the real extent of the Emma deposit, beyond a few thousand tons actually in sight, or supposed to exist between floors already open, and between the uppermost floor and the surface. I fancy the company does not care to open up more ground in advance, while litigation is pending.

The Flagstaff is another productive mine of similar character, in the neighborhood. It likewise is in litigation. A little higher up on the mountain are the Savage and Montezuma, also deposits in limestone, but not conformable with the strata in dip or strike. Still higher, in fact, over the ridge, and at the head of Silver Fork, is the Davenport, a mine of great promise, which is shipping rich ore, and cursed, as usual, with a lawsuit. Ditto the Highland Chief; ditto almost every really good mine in the group.

But I must shut up my note-book, and close my letter. One cannot be as thorough as one would, in these rapid wayside chronicles. R. W. R.

Storing Coal.

THE Lehigh Coal and Navigation Company are making surveys of their land a short distance above Mauch Chunk, upon which it is proposed to store their coal, mined when the market is not in the condition to take it. The Delaware and Hudson Canal Company have done this for a long time, and find it very profitable. The location has not yet been decided upon. This is a new departure for the old company, and we hope it will be found to be successful in a pecuniary point of view. The coal mined at Summit Hill during the winter, when trade is dull, will be stored on this side of the river, and shipped by canal when prices are better, in the spring and fall. Coal from Newport mines will be stored on the other side of the Lehigh, if the company deems it advisable. It is expected that there will be sometimes as high as two or three hundred thousand tons on hand at these yards.—*Mauch Creek Gazette.*

MINING SUMMARY.

California.

THE SAN DIEGO MINES—JULIAN DISTRICT.

The *Scientific Press*, of August 6th, has the following correspondence, dated Julian City, July 20th: Editors *Press*—Since my last letter so many favorable developments have been made in the mines of this region, that I can but make a commencement in this letter, to give you a history of our progress. D. M. SNYDER, MORRIS & Co., of San Francisco, who some weeks ago bought two-thirds of the California claim in this district, returned here last week, and are busily engaged in getting out timber preparatory to straightening and permanently retimbering the shaft, and will soon commence sinking. I believe the intention is to sink 400 feet. The work is being prosecuted with energy, and will no doubt soon develope one of the first-class mines. The ledge has varied from eighteen inches to four or five feet in width. Some of the ore has yielded $1 per pound in a hand mortar, and $57 by mill process. The Owen's mine, which is the original discovery, on the same ledge as California, is now down over 130 feet; ledge about 4 feet wide, showing free gold; this mine always has paid well. They have a new whim, the first in the district, which greatly facilitates the work of sinking. The Van Wert Co. (not Van West, as you generally print it) have commenced running a tunnel to strike their ledge about 125 feet deep. This ledge is small, but rich; the small quantity of ore extracted has more than paid all expenses. The Hayden Co. are sinking an incline, rock paying from $30 to $33 per ton. The San Diego, No. 1, owned by MCMECHAN, FOX & Co., are sinking a shaft, and have good pay rock; the last crushing $22 per ton. The Helvetia Co. are still sinking their shaft, are now down 140 feet, and have first-class ore; in fact, the best average ore ever shown in the mine, and a good, well-defined ledge. All of these mines are on the same belt or range, including many others that prospect well, but are idle for the want of capital. The new mill of GUNN & REYNOLDS, started up yesterday, runs smoothly, and will, no doubt, do good work, having, in addition to the five stamps, facilities for concentrating and an improved plan for working sulphurets and concentrations. If it proves a success, they will have more work than half a dozen mills of that size can do, in which case they are prepared to add such machinery as they may need. The Virginia Co. are working the Virginia ledge in "Coleman District," two miles west from here, are down about twenty feet, and have a ledge of eighteen to thirty-six inches wide, and all prospects well.

BANNER DISTRICT.

The Kentuck Company, under the superintendence of M. A. LEWIS, controlled by MCDONALD & WHITNEY, of San Francisco, who have recently bought the mine, started up the work of sinking this week with full force, and on yesterday they struck some more of the rich ore for which that claim has been celebrated, being literally filled with gold. The Madden Company, on same ledge, have their usual amount of rich ore, and the ledge is improving every foot they sink. The last ore worked paid over $40 per ton. The Antelope Company, on the same ledge, are still running their new 5-stamp mill on their own ore, paying $70 per ton. The Redman mine, under the supervision of J. N. TIERNAN, is looking well. In sinking the shaft, the ledge pitched to the west into the hill, where it was about four feet wide. Last week a new and small ledge made its appearance in the shaft, showing free gold and silver sulphurets. It has increased, until it now covers the bottom of the shaft, with slate intermixed. The prospects are very flattering, indeed, for a large and rich ledge, when the two ledges come together. The additional machinery brought here and added to MCMECHAN'S mill, will probably be started up for regular work to-day. It consists of a 16-horse power engine, a Varney pan (latest improved), a large wooden concentrator, and copper-shaking table of TIERNAN'S own invention. If they do not do first-class work, there is no use in having good machinery. TIERNAN has shown himself a man of energy, and competent to carry on such work. We want more of such men as he and SNYDER, of Julian, and this country would soon have a character for rich mines, second to no mining district on the coast. The Bayley Company, on the south end of the Redman ledge, are taking out ore to work by the new process in MCMECHAN'S mill. They have a large ledge and rich ore. The King ledge, Golden Chariot mine and Company, are still sinking in rich ore, on their big ledge, which, at the depth of fifty feet, is four to five feet wide. The Little Joker, which was three or four inches wide on top, of soft, decomposed chalky-looking ore, rich from top to bottom, is now forty-eight feet deep, and two feet wide, with some ore that, report says, is worth from two to five dollars per pound. There are many other mines that I would like to mention, but it will require too much of your valuable space. I will close by simply saying, of all the mining districts on the coast, I have not heard of one that shows as many paying ledges and rich prospects, or as much work done and paid for out of the mines themselves, or from a like quantity of ore worked, that can show as good returns, with as good a climate, timber, water, and everything to make the locality desirable for health or a home, as Julian and Banner districts, San Diego county, California. Since MCDONALD & WHITNEY and SNYDER, MORRIS & Co. have been interested in our mines, strangers and capitalists are coming in more freely and times looking up. I have just heard from the Stonewall, Captain A. P. FRARY'S mine, that the ledge has been enlarged to twelve feet in width, and the rock is every pound worked, and pays well. I will tell you more about it in my next letter.

CLARK DISTRICT.

From the Los Angeles *Star*, of July 21, we copy the following: We saw yesterday, at the store of H. NEWMARK & Co., a large lot of ore from this district. It is from the Eugene lead, and will probably assay as high as $1,200 per ton. The same firm sent up to San Francisco, by the Taber, a ton of ore taken from the Bronco and Winnemucca lodes; they also expect about fifteen tons from the same district, to be forwarded to San Francisco for assay. NEWMARK & Co. are the agents for various mining companies of Clark district, through whom, principally, they do their business. The teams come direct from the district to this city, by way of Cañon Pass. The miners bring their ore here for shipment, and they find it to their advantage to have agents at this point, who take charge of their ore and make the necessary advances. The fact is that Los Angeles is the most advantageous point for the various mining districts to make their shipments to. Here they can have advances made, are in communication by telegraph with San Francisco, and are afforded more conveniences for transacting their business than at any other locality on the coast. For these and many other reasons it is obvious that the miners will continue to make their depot at this place just as long as greater facilities for the transaction of their business is furnished here than elsewhere.

From the Alpine *Miner*, of August 5: The Exchequer mine is now yielding a large amount of the richest of Ruby ore. From a reliable person who was through the mine a few days since, we learn that they have several stopes opened out where the ore shows in abundance. The ledge is several feet thick in the various levels, and they have exposed at least 120 feet in depth on this chimney. A little more *push* in the management of the Exchequer would make this a first-class mine. On Monday of this week the Mount Bullion Company cut into the casing of a ledge, which is hoped to be *the* ledge for which they have been running so long. This is an enterprise of a single individual, and from the vigor and perseverance manifested by the proprietor, has the best wishes of the entire community. The management of the Mount Bullion stands out in such bold and bright relief as compared with some other London companies operating in Alpine, that it can but be hoped they will meet with the most generous reward in the shape of rich mineral treasures indicated by the out-crop of their mine.

ELDORADO CO U:

The *Democrat*, of a late date, says: H. LOUIS & Co., who on Friday last struck a rich streak in their ledge on Quartz Hill, and took out in one day in the neighborhood of $1,000, had not until yesterday done any work on the lead. We are informed that yesterday they took out $300 in about an hour. The proprietors of this claim had for a year or more been laboring hard on their mine—had met with but little encouragement, and were, indeed, so reduced in circumstances as to have become almost discouraged. It was under these circumstances that they found themselves, within twenty-four hours, transported from extreme depression, in feeling and in purse, to the happy realization of hope deferred and relief from all financial embarrassment.

Colorado.

We clip the following items from the Colorado *Miner* of August 3: The Stewart Silver Reducing Company are making rapid progress in proving to the satisfaction of all interested, that the Airey furnace is especially adapted to the chloridizing of the silver ores of this district. The feed is now arranged, and all of the machinery works well. Such ores as have been chloridized and tested show that the silver they contain is chloridized from 77 to 98 per cent. The result is far better than anticipated.—Argentine promises to be as lively as it was in the palmy days of 1865. Since the discovery of the 4th of July lode, prospectors have been gently murmuring

> Up to the line of the flowering Pine,
> Up where the sulphurets sparkle and shine.

J. M. SMITH the premium boot man, discovered a lode on McClellan mountain a few days since, and his friends fear that the smile which he now wears, will become chronic through life. The ore assays $1059.28 coin per ton. PALMER & NICHOLS are now running two Bruckner cylinders, and have a full supply of ore in their mill. They have purchased and have on hand, since our last issue, 27 lots of more than average ore. Their shipments of bullion during the week have been light, owing to breakage in their flume, caused by heavy rain on last Monday. The shipment of bullion for the week is as follows:—Brick:

No. 384	744.10 ozs.	919 fine	$884.13 coin.
" 385	221.65 "	916 "	262.50 "

Among the lots of ore now in the mill for treatment we noticed one lot from the new lode discovered by J. M. SMITH, the value of which was 270 ozs. per ton, and another lot of Matilda Fletcher ore, that assayed 295 ozs. per ton.—Sinking and drifting has commenced on the Ajax or Big Indian lode, Leavenworth mountain. The breadth of the crevice between walls is about five feet, and the mineral deposit consisting of argentiferous galena, blende, and pyrites is about 30 inches in breadth. As development goes on the vein matter improves. The location of this mine is favorable for mining on a cheap scale. H. B. MORSE, Esq., informs us that average material taken from the Big Indian, assays from 80 to 125 ozs. per ton. We have frequently examined the above lode, and can safely say that it is a true fissure vein of large mineral bearing capacity. We are truly glad work has started up on this great vein.—The Indigo Lode is situated on Leavenworth mountain, in the immediate vicinity of the "O. K." lode, and during the past three months has produced ore of astonishing richness, when it is considered that the results obtained were by actual mill treatment, and in quantity. The following lots of ore were treated at the "Stewart Silver Reduction Works." 2814 lbs. of 1st. class ore yielding 809 oz. or $1051 coin value per ton. 5176 lbs. of 2nd class ore yielding 168 oz. or $218.40 coin value per ton, 700 lbs. of 3d class ore giving 26½ oz. or $34,45 coin value per ton. Ore from the "Indigo" lode exhibited at the Paris Exposition of 1866, carried off the first prize. The discovery shaft on this lode has reached a depth of 42 feet, and another is now being driven from a point about 115 feet east of the discovery, that will (when completed to the discovery shaft) develope the vein to a depth of 80 feet. A lot of 497 lbs. of 1st. class ore from the "Indigo" gives by actual mill treatment 1150 oz. or $1,495 coin value per ton.—Work is progressing on the east and west portions of the Stevens mine, and highly satisfactory results are obtained. The mine is being well opened by levels, crosscuts and shafts, and the ore yield is large. A lot of ore shipped not long since to Newark, New Jersey, for treatment gave a large profit on the venture. Another lot of 10½ tons has been shipped to Swansea, Wales. This ore will yield 180 ozs. in silver, and 60 per cent. lead per ton. This mine situated on the north face of McClellan mountain, is still in frozen ground, although a portion of the workings are about 200 feet from the surface. The ground is thawed at night by wood fires, and the heat penetrates far enough to soften all the ground the miners work during the day. But very little powder is used, the crevice material after being heated is taken out mostly by the pick, and gad. The second class ore, about one half of the pay crevice yields by mill treatment 100.8 ozs per ton. The South east half of this property belongs to the Crescent Silver Company of Cincinnati, and the north west half to FRANK DIBBIN.

The east end of the Mammoth mine is undergoing active developement at the present time, and the yield of ore is such as to be in every way satisfactory to its owners. A tunnel 113 feet in length was run last season which intersects the vein at the depth of 40 feet, and a shaft has been sunk, at the point of intersection, 28 feet in depth, from which was taken 14 tons of ore, that gave an average yield of 140 ozs. per ton. The mineral vein in the shaft averaged full 12 inches in width. From the tunnel east a drift is being run, which is now 60 feet in length, with an ore vein of an average width of 8 inches. A stope is also being commenced over this drift, in which the ore vein is much larger than in the drift. When the mine is fully opened, it will be one of the best ore producers in the district. The ore that has been recently treated from this mine, gave an average yield of 150 ozs. of silver to the ton of ore.

From the same, of August 19: PALMER & NICHOLS since our last have shipped three bricks:

No,	386	1101 60 ozs.	853 fine	$1.214.95	coin.
"	387	1230.60 "	770 "	1.225.18	"
"	388	205.40 "	776 "	206 08	"

Ore is coming in steadily, and some lots are very rich. Slide min eral assays as high as 450 ozs. per ton The Stewart Silver Reducing Company commenced shipping bullion this week. The Airey Furnace we are authorized to state, by the Superintendent J. O. STEWART, is working to the entire satisfaction of all parties concerned. We have on our table a specimen of rock taken from the Crane lode, Leavenworth mountain, that would create a mining fever in California or Nevada. Here in Colorada it is so common that it attracts but little attention. WILLIAM FRANKLIN is the lucky owner of the Crane. We notice that WILLIAM BEMENT has opened an assay office near the ruins of the old Washington Mill, where he will be glad to see his friends and old customers. Mr. BEMENT is worthy of patronage, and we trust our miners will keep him at work in his profession of assaying ores. W. H. ARMSTRONG and others. have made four discoveries on Leavenworth mountain, and have named them as follows: Brett Harte, Major Cowling, Wall Street and Sam'l Bowles. The latter vein is very large, and has a pay streak as rich and large as the descriptive powers of the veteran Editor of the Springfield *Republican*. JAMES CALLERY and others are working the Cashier, situated at Empire, in Upper Union District. This lode out-crops on the face of the mountain in such a manner that it can be worked by levels drove in on the vein. The breadth of the vein is immense, and the pay vein has a breadth of two feet. The rock carries gold and silver, gold predominating. The rock and mineral is hauled to Georgetown and sold for from $85 to $125 per ton in currency.

ARGENTINE MINING DISTRICT.

As sudden as a flash of lightning almost, mining affairs have become very active in Argentine since the discovery of the 4th of July lode on last Independence day. The very next day CHARLES MYERS discovered a rich vein on Kelso mountain, and named it the 5th of July. Mineral taken from this new treasure, and assayed by A. WALTERS, of Bakerville, gave 733 ozs. in silver per ton. The vein is a large one and will prove a valuable acquisition to the above district. The SHIELDS Bros. are working the Owlet on McClellan mountain, and are obtaining good results. They have about five tons out, and will soon have the value of their ore tested by mill treatment. The Argus and Fortunatus both on Kelso mountain, are yielding up rich ore and in considerable quantities. Ore taken from the former yields by assay 336 ozs., and from the latter 1134 ozs. per ton. On the Baker 5 drills are running, and in a very short time there will be 10 drills set to work night and day. This mine will in our opinion, become by proper development one of the best yielding mines in the Territory. Messrs. WALTERS & BECHTLE are working the Dresden, situated on McClellan mountain. The ore obtained is high toned, and assays 587 ozs. per ton. The pay vein has a good breadth, and the ore yield will be large. This mine will soon be rendered very valuable by development. R. H. WOOD is working the Pocohontas lode, Kelso mountain, and is rewarded by most encouraging results. We saw some of the ore at the mill of the Baker Silver Mining Company, and if one can judge from appearances, the yield by mill treatment will be good. The crevice is very large, and the yield by assay of the best ore $910 per ton. PETE PETERSON and others are working the Wayne county lode, situated on Kelso mountain, and are taking out good milling ore. Rock and mineral taken from this vein assays from 80 to 400 ozs. in silver per ton. The Baker mill, situated at Bakerville, was discovered to be on fire on Sunday last, about 3 o'clock P. M., in the immediate vicinity of the drying furnace, and although every possible effort was made to save the structure, it was soon a heap of ruins. In close proximity to the engine room 500 cords of wood were piled up, which was saved, thereby rendering the boarding house and other buildings secure. The machinery we are informed, is not materially injured, and therefore the loss to the Baker Company is confined to the Mill buildings. The loss is estimated at $25.000, fully covered by insurance.

Nevada.

From the Elko *Independent* of Aug. 5: For the month of March last, the 15-stamp mill at Mineral Hill cleaned up $120,000 in silver bullion, and the average for each month since has been $85,000. The mill is now stopped for want of water. To obtain a full supply of water hereafter it is proposed to lay pipes to Cave Creek. The English company, which has purchased the entire property of the old company, has contracted with BOOTH & Co. to put up a 36 stamp mill, which is to be completed by the 8th of October next. Water for the mill will be obtained from Cave Creek, Dougherty, or Cole's Creek. PRESCOTT, the engineer of BOOTH & Co., is now at Mineral Hill, making arrangements to proceed at once with the work. GEORGE ATWOOD is at present in charge of the affairs of the company, and will remain until Mr. LEWIS arrives. The latter will have charge permanently of the affairs of the company, and will have the superintendence of the mill and mines.

The Eureka *Sentinel*, of July 25th, has the following in regard to Fish Springs Mining district: The new District is situated about eighteen miles southwest of Eureka, and the best road by which to get there is by Spring Valley, and then down Spring Valley Cañon, where the water will be found and the camp of the prospectors. The district was organized a few days since, and about twenty claims have been recorded. The claims are situated upon a hill of a few acres, and the discoveries so far made do not cover but a few acres in extent. The appearances now indicate, on the east side of the hill, that there are no regular veins of quartz, and the west side seems to be entirely carbonates and galena ores. The carbonates at the surface assay from $30 to $35, while the galena has assayed as high as $400. The Mountain Queen is the first location in the district, and shows ore fully fifteen feet wide in a regular fissure vein. Several specimens have been assayed, and the average is $212 in silver and forty per cent. in lead.

Montana.

We are indebted to the *New North West* of July 29th for the following:

LAST RESORT.

Everybody knows where Clark's station is, on the Deer Lodge and Helena road. Well, a few days ago, a number of men from El Dorado, including Messrs. MEEKS, STUART, SUTHERLAND and CULBERTSON, went about three miles up the gulch (Hope) and starting in to prospect, got from three to twelve cents to the pan, on false bed rock, at a depth of three feet. Quite a stampede occurred, and on last Tuesday evening a district was organized, with H. S. CLARK as Recorder. The district is named "Last Resort." There are about 75 inches of water now flowing, and the boys think it is a good thing. It will be remembered that this gulch was prospected with a drain-race costing some $6,000, a year or two since and abandoned. It now appears that they ran entirely through the false bed rock on which the gold is found, without stopping to prospect, and never finding any other, abandoned it. We notice by the *Gazette* that the first clean up has yielded $10,20 to the hand, and doubtless the gulch, which is eight or nine miles long, will now be prospected on the new basis.

From the *Independent* of July 28th.

RICH QUARTZ.

Messrs. Morton, Harris & Blackinger discovered a ledge some three weeks ago on Montana bar near Diamond City, that was very rich and the more developments that are made upon it, the richer it proves to be. Some of the rock is almost pure gold, and other parts of it contain fully one half gold. The ledge is ten feet wide at a depth of four feet and prospects well the entire distance. If it should prove as rich to any considerable depth, it is certainly the most valuable mine that has been discovered for years. It is believed that this ledge is the source from which came the fabulous amounts of gold found in Montana gulch and bar, and from the character of this gold there seems to be little room to doubt the correctness of this theory.

Arizona.

THE TIGER AND OTHER LODES.

Good news continues to come from Tiger and Pine Grove Districts, Bradshaw. Last week, over 50 persons went out there, and this week witnessed the departure of several others. Our latest news from the districts is derived from Messrs. D. Henderson, D. C. Thorne, John Curran, Peter Scott, and others, who have arrived here within the past few days. This news is similar but "richer," to all heretofore published by us. Regarding the Tiger lode, they inform us that the discovery company's shaft was down over sixty feet; that the ore was richer and more plentiful than at any time previous. Riggs, Hammond & Co., had struck a large body of rich ore, at a depth of over seventy feet, in their location. Gordon & Co. were taking out rich ore, and so, indeed, were all the other old companies on the lode. Bill Linn had gone to work with a will on his Tiger claim, which lies between discovery claim and those of Thorne & Cassidy. When our informant left, Mr. Linn, at a depth of ten feet, had a large mass of very rich ore, showing free silver, rich sulphurets, etc. Specimens brought over by the gentlemen referred to appeared to be worth more than half their weight in silver. Mr. Curran, who has had a great deal to do with the famous Comstock mine, Nevada, gives the preference to the Tiger, and thinks it is the richest, best developed silver mine known.

The Hudson lode had been opened to a depth of 26 feet at which depth it was about 12 feet thick. The rock shows pretty well, but had not been tested. Mr. Scott had found a new ledge near the Lorena, ore from which we have seen, and like very much. Most of the owners of ledges in Pine Grove District, were working them. The Del Pasco mill was nearly up and ready for crushing. Water was not plenty at Bradshaw City, but it will be

soon, should rain come as it ought to. Quite a party of men had started to look at some ledges which exist not far east of the mouth of Black Canyon, and which were discovered several years ago by a party of which we were one. The party from Bradshaw started under the guidance of Jackson McCrackin.

The "Miner" party were preparing to leave for Eastern Arizona. Their objective point appears to be Pinal Mountain, that is, judging from the communication we publish to-day, and to which we direct the reader's attention. Should they go there, we wish them good luck, and hope their expectations will be more than realized.

News from the other districts, in this immediate vicinity, is meagre. The Mexicans are hard at work, near Black Canyon creek, on the Sonora ledge. Pieces of their ore recently brought up here, appear very rich in silver. Big Bug and Walker districts are quiet; the former much more so than the latter, as Messrs. Shelton and Pointer are taking out ore, at Walker, and some other men are rocking in the bed of the creek. The Black Hill region has recently produced rich gold and silver ore, the latest installment of which was brought here by Louis Wortman and others, who have just returned from that region, and who speak very highly of a ledge now being worked by Ed. Peck and others.—But little is being done in Weaver, Walnut Grove, Martinez and the Upper William's Fork district The only thing we know of is that Dr. W. W. Jones has men at work on a ledge, near William's Fork, and intends to ship a lot of ore to San Francisco.—The Vulture Company—Wickenburg district, are still mining and reducing ore, with fair results, we presume.—Several tons of Davis ore have been sent to San Francisco, for reduction, and it is rumored here that the Eureka mill is to be removed to this mine, and fitted up as a silver mill. We had about forgotten to state that several ledges—showing free gold and silver—have recently been discovered and located in the vicinity of Noyes & Curtis' saw-mill, six miles south from Prescott. One—the Emma—is very prepossessing. Messrs. G. W. Curtis and J. Voshay have our thanks for claims on two of these ledges.

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U. S. PATENT OFFICE,
WASHINGTON, D. C. June 26, 1871.

On the petition of J. D. WEST of East Orange, New Jersey, praying for the extension of a patent granted to him on the 29th day of September, 1857, for an improvement in pumps. It is ordered that the testimony in the case be closed on the 29th day of August next, that the time for filing arguments and the Examiner's report be limited to the 8th day of September next, and that said petition be heard on the 13th day of September next.

Any person may oppose this extension.

M. D. LEGGETT, Commissioner.

U. S. PATENT OFFICE,
WASHINGTON, D. C. July 15, 1871

On the petition of DELOS W. GITCHELL of Newburgh, New York, and LUTHER W. BADGER of Elizabeth, New Jersey, praying for the extension of a patent granted to them on the 26th day of October, 1857, for an improvement in manufacturing Seamless Felt Garments. It is ordered that the testimony in the case be closed on the 19th day of September next, that the time for filing arguments and the Examiner's report be limited to the 29th day of September next, and that said petition be heard on the 4th day of October next.

Any person may oppose this extension.

M. D. LEGGETT, Commissioner.

U. S. PATENT OFFICE.
WASHINGTON, D. C. June 23, 1871.

On the petition of WILLIAM PLUMER of Boston, Mass., praying for the extension of a patent granted to him on the 5th day of October, 1857, for an improvement in Rock Cutting and Drilling Machines. It is ordered that the testimony in the case be closed on the 5th day of September next that the time for filing arguments and the Examiner's report be limited to the 15th day of September next, and that said petition be heard on the 20th day of September next.

Any person may oppose this extension.

M. D. LEGGETT, Commissioner.

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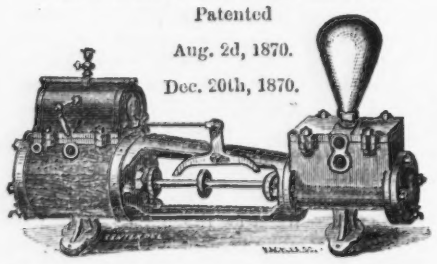
Patented
Aug. 2d, 1870.
Dec. 20th, 1870.



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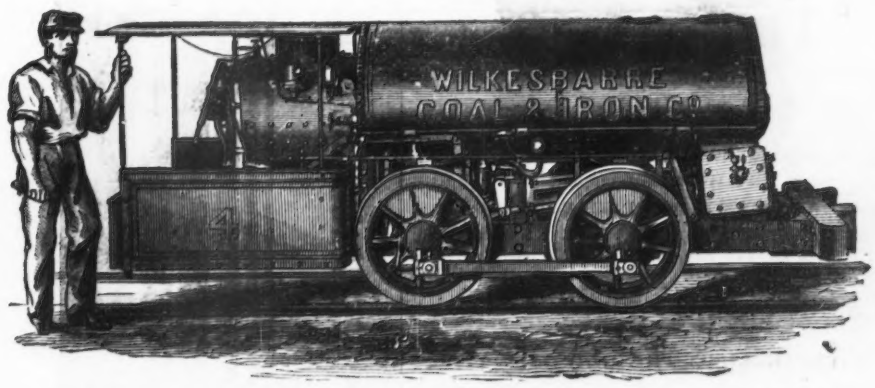

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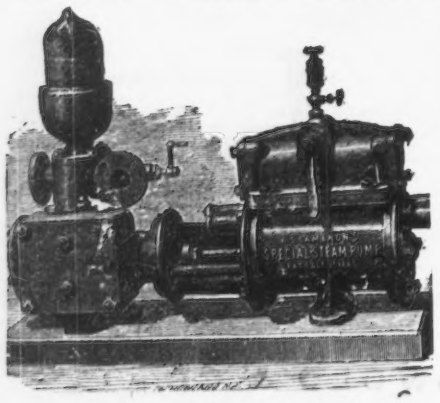

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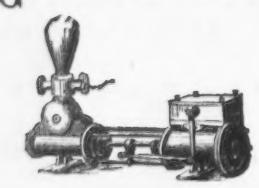

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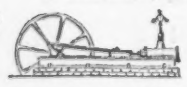

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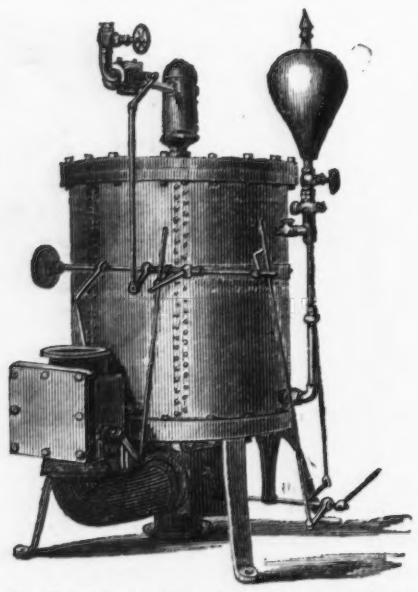

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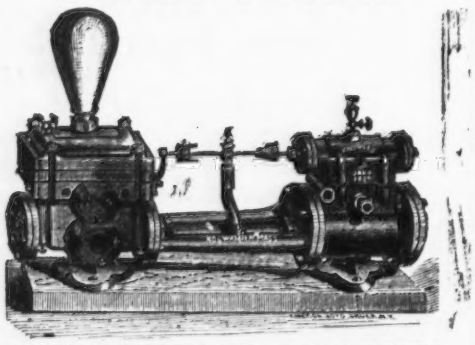

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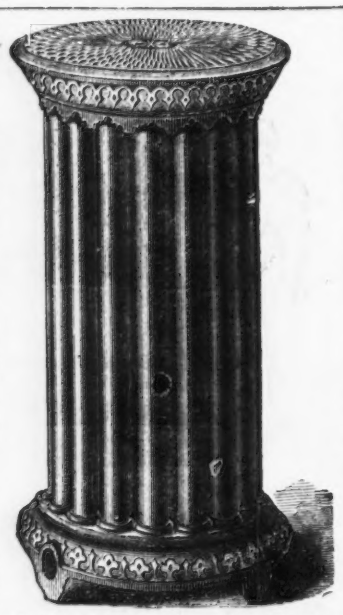

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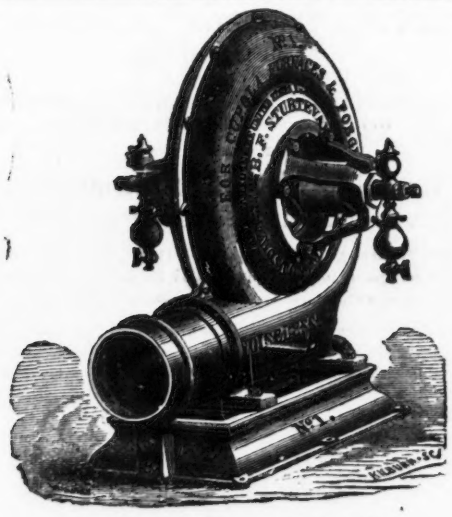

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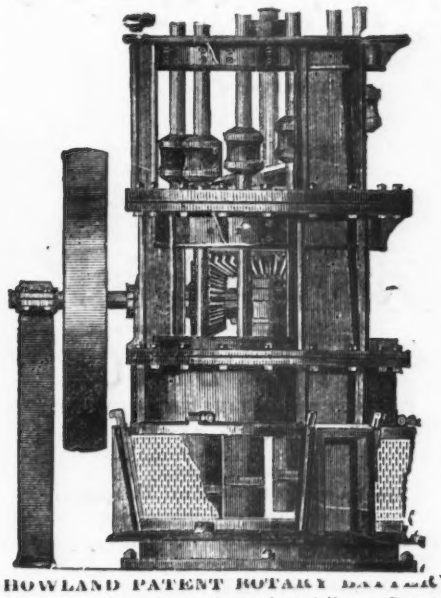

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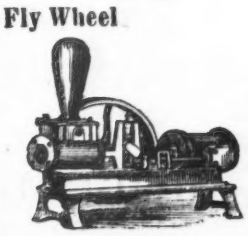

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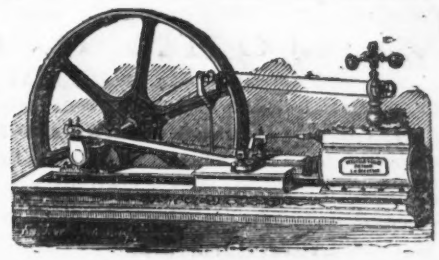

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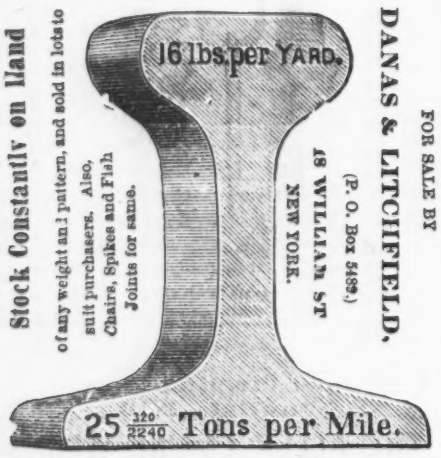

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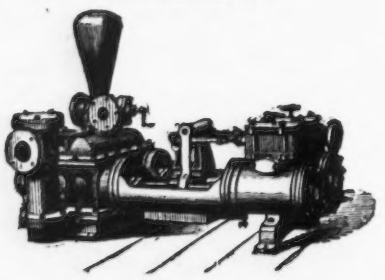

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